MINING & PETROLEUM STANDARD

AND

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PETROLEUM.

FORMATION OF COAL FROM PETROLEUM.

One of the more generally accepted theories respecting the formation of petroleum supposes that substance to be a product of the destructive distillation of coal by means of the earth's internal heat. There is being discussed just now, however, a theory which is the exact converse of this—a theory according to which, instead of petroleum being formed from coal, coal was formed from petroleum. It is well known that "all organic substances which are not themselves volatile, such as wood, flesh, and other vegetable and animal matters, yield, when subjected to the influence of heat below dull redness, tarry oils, having in all cases the general character of petroleum, and differing only according to the specific differences in the materials from which they may have been obtained," and the new hypothesis supposes that the materials from which our coal beds were formed were converted in the first instance into such "tarry oils," and that these oils, under the long-continued action of heat, gradually lost nearly all their oxygen and the chief part of their hydrogen, the residium gradually becoming solid. The advocates of this theory point in support of it to the phenomena presented by the celebrated "Pitch Lake" of Trinidad. This lake covers an area of ninety-nine square miles, and is of very great depth. "The bitumen is solid and cold near the shores of the lake, and gradually increases in temperature and softness toward the center, where it is boiling. The ascent to the lake from the sea, a distance of three-quarters of a mile is covered with a hardened pitch, on which trees and vegetables flourish, and about Point la Brays the masses of pitch look like black rocks among the foliage." Mr. G. P. Wall describes the lake as yielding three kinds of asphaltum: "1. Asphaltum glance, which is hard and brittle, of an intensely black, brilliant luster, and conchoidal fracture. 2. Ordinary asphaltum, of a brownish-black color, containing 20 to 35 per cent. of earthy admixture and a considerble proportion of water, and possessing the property of plasticity, which it gradually loses on long exposure to the sun and atmosphere. 3. Asphaltum oil, occuring associated and diluted with water, but appearing, when concentrated, as a dense black fluid with a powerful bituminous odor. If collected in an open vessel, the more volatile part of this oil evaporates after a few months, leaving a solid black substance, of similar appearance and analogous properties to asphaltum glance." It is alleged that the theory of coal having been condensed from a liquid, in the same way as this "asphaltum glance," accounts better than any other for its purity, seeing that "all impure or foreign substances which did not decompose would most likely be of greater specific gravity than oil, and consequently sink to the bottom." The high state of preservation in which plants frequently occur in our coal-beds, and the fact of trees being found erect in them, are easily accounted for upon this theory. Trees grow on the hardened pitch of the Trinidad lake, within a short distance of other pitch in a state of ebullition, and one can readily conceive of the hardened pitch, in any similar case, being softened by an eruption of the boiling pitch, and of the trees growing on it being thus ingulfed, or of the lake overflowing its banks and so submerging adjacent vegetation. The new theory also furnished a simple explanation of the "exceeding minuteness of many coal seams, which thin out into mere filaments over extensive areas of solid rock," and might well be due to an oily liquid having overflowed the rock when it was at the surface, and having then, in process of time, in part evaporated and in part solidified. The shape and dimensions of many other coal seams are equally consistent with the idea of the seams in question being the solid residuum of what once were lakes of oil—and indeed the great majority of all known coal-formations are basin-shaped, "with long and sloping sides dipping down to a common and profound center," a fact which certainly tells with great force in favor of the new hypothesis. On the whole it must be admitted that the theory that the first step in the formation of coal was the production of "tarry oils," by the destructive distillation, at a comparatively low heat, of vegetable and perhaps animal matter, and that coal consist of the less volatile portions of these oils, solidified and hardened by heat and pressure, is not without plausibility—at least in respect of certain kinds and formations of coal. There are some coal-beds which present phenomena which could scarcely, so far as we can at present see, be accounted for on this theory; but further researches will doubtless throw additional light on the whole matter—and it is not necessary that we should suppose that all the coal that exists was formed precisely in the same way.—*Mechanics' Magazine.*

CALIFORNIA PETROLEUM INTEREST.

We unde stand that oil has been discovered on Bell's ranch, about fifteen miles below Half-moon Bay, where oil had previously been discovered on Purissima creek.

The new steamer Del Norte, which started on her first trip up the coast on Wednesday, took up, to Humboldt Bay, machinery for boring for oil on the ground recently purchased for the purpose by Levi Parsons and other prominent capitalists of this city. Operations on mattole creek will be commenced as soon as the machinery can be placed on the ground.

The North Fork Oil Company is the title of a new organization which filed its papers of incorporation on Monday. The object of the company is to conduct the business of boring for oil in the Mattole mining district, Humboldt county, California. Their capital stock is $500,000, which is divided into 5,000 shares of $100 each. Their business will be managed by a Board of three Trustees, which, for the first three months, will consist of Thomas G. Richards, B. Reinhardt and Joshua Lyon.

The Wilmington (Los Angeles) *Journal* of April 22d, says that the Los Angeles Petroleum Oil Company commenced to drill by steam on the Saturday previous, and on Tuesday night were down fifty feet. From present appearances, they will be down 100 feet within a week from the time they commenced boring. For eight feet below the surface the hard, black asphaltum found at the top continued; after that they reached a hard, blue, sandy clay, in which they were still working. Through all this clay there are veins of asphaltum, an inch wide down to a mere thread-mark, apparently forced up to the surface by gases from below—the asphaltum being thinner as they go down. When the mud is removed by the sand-pump an oily substance is seen floating on the surface of the muddy water, presenting varied hues. Some gentlemen from Pennsylvania visited the well lately, who pronounced the indications favorable. The progress of the work was attended with considerable interest. Many ladies and gentlemen called to see the works daily. Important developments may be expected at an early day. A correspondent of a morning cotemporary, writing at a date subsequent to the above, says that on the 28th ult. they were down 130 feet, and sinking at the rate of fifteen feet a day. The bore at that date was in a tough clay. A large amount of oily matter came up with the clay, which is taken out with the sand-pump.

A Los Angeles correspondent of a city cotemporary says that there is a flattering prospect that the first dividends declared from the recently discovered oil lands and petroleum springs about Los Angeles, will be received by the lawers. Lands supposed to rest upon the city bed, have been located under the National and State Homestead and Possessor Acts, and re-located as mines under mining laws. The owners of ranches held and located under Spanish and Mexican grants, are loosening the bonds by which they were fastened upon their oily beds, and are slewing and sliding them about hither and thither, to make cover this and that oil spring, or some tract of oil land, which had been located, bought or taken up by some prospector.

PROGRESS OF THE PETROLEUM INTEREST.

We learn from Mr. Sevenoakes, who has in charge the works of the Pennsylvania Petroleum Company, that the work of boring is proceeding very satisfactorily. The well was down 181 feet at noon on Tuesday last, and the workmen were progressing at the average rate of one foot per hour, working twelve hours per day. Mr. S. brought up with him to this city a sample of the oil and water, as it comes from the well. The indications are most unmistakable. This well is located directly on the sea coast, and about six miles south of Santa Cruz. It is now about two months since Mr. S. commenced the preparation for boring, and it was eighteen days Tuesday since they commenced boring. The auger is worked by horse-power. The nature of the ground is such that no tubing is required at this well.

Mr. Sevenoakes was the first in the State to commence sinking a well for oil. His first work was under a contract with the Santa Cruz Petroleum Company, whose grounds is located some five or six miles from that of the Pennsylvania Company.

Considerable work is being done in boring for oil near Lexington, about fifteen miles beyond San Jose.

The first work done was by some Portugese, who sunk an open shaft, at first for coal, but at a depth of 115 feet the indications are such as to lead to the inference that by boring a short disfance from the bottom of their shaft they will find oil.

More recently the Lexington well has been started which has now reached a depth of 135 feet, with indications highly favorable. This well is tubed the entire distance, and work is still prosecuted upon it.

Shaw's well has quite recently been started. They are putting down an open shaft, which will be continued as such until firm ground is reached; much diffi-

culty being found in tubing through the loose surface ground. Each of the three last mentioned wells are in close proximity to each other. There are very extensive indications of oil at numerous other places on land in the vicinity of these wells, the owners of which are waiting anxiously for some determinate developments in the wells already started.

We have heard nothing new during the past week from the Adams, or any other wells now in progress south of San Francisco, except those mentioned above. —*San Francisco Mining Press.*

MINING.

THE MINING PROSPECT IN HUMBOLT, NEVADA.

In the midst of all the dullness which has so long hung upon all our business and prospects, we are gratified now with signs of an early improvement. Work is about resuming on many claims which have lain undisturbed through a great part of the winter Several of the most able companies have, for different reasons, allowed operations to be suspended for a time, and that cause has contributed largely to the discouragement of companies having short purses, and at the same time has done its share towards establishing the disgusting quiet which a mining community so abhors. The Sheba and De Sota, at Star City, are preparing to resume work this month. The latter, we understand, purposes putting a large lot of ore, now out, through the Sheba mill, while the Sheba Company opens up drifts and shafts for working the last floor of ore struck in that mine. This will stir things up in Star, and do much to disipate the gloominess which has threatened to become chronic with some of the people there as well as many here. The American Basin Company has got its affairs nearly righted again, and has resumed work, with excellent prospects for a big strike in course of the season. The Whitmore goes steadily forward with its handsome tunnel, caring nothing for the cares which haunt the minds of those having little faith. O'Connor and the others who conduct this work, have faith abundant—they need not a whit more. The Trinity fellows are plodding on industriously. They must have faith for we see nothing else that could have sustained them so long.

In this district the Atlas Company and the Manitowoc will soon commence bringing down ore again. The little mill in the upper town is getting up its water-power, and will in a few days be crushing National rock. The Nevada Company is going on with its tunnel, expecting in a few weeks to cut the ledge at a depth of not less than 300 feet. The men passed through a vein of quartz this week, bearing considerable quantities of ore, and a stuff supposed to be "Aikinite." They think the ledge cannot be far off. If the boys find it, and find what they calculate on, look out for a high time.

The Gem Company, in Sierra District, is yet at work, as it has been all winter, sinking a fine working shafts through which to work that excellent mine. Fall's mill is this week running on some second and third class ore from the mine. The first class ore, we believe, is shipped.

The Copp Company is still at work, opening up the well known Badger & Annie ledges. Doubtless other companies in Sierra are at work, but we have not the items. The Tallulah will probably resume work in a few weeks.

The warm weather has taken the frost out, and Ginnea is again enjoying the sight he loves so well to witness—a full force of men, teams, plows, scrapers, and other means, at work on the Humboldt Canal.

The Montgomery Company, with James Montgomery as Superintendent, is at work developing its mines in Humbolt District. When Montgomery sees this, he will probably sit down and send us a little information as to the character and progress of his work Our salaried correspondent at Humboldt City has sadly neglected us during several months. We sometimes fear he has fallen a victim to the jealousy of Pettit or Crow.

Mill City begins to loom in the premonitory shadowings of a town to be. Dickinson, of the Aetna mine, in Prince Royal, is having a twenty stamp mill built in San Francisco, to be put up at Mill City. He has two small mills on the way from New York. These he will probably put up somewhere in the mountains

In Santa Clara, the Little Giant Company's tunnel is worrying in through very hard rock The Butte Company is at work: whether sinking or tunneling, we are not informed

In American District, the owners of an extension of the Westerfield are at work to develope their claim.

In Sacramento District, the Daniel Webster Company is progreseing with its tunnel. At Williamsburg, the St. John and other companies are working. The St. John turns out some marvelously rich silver ore.

In Trinity Distict the Evening Star Company is doing good work—putting the incline down far below water. The ledge is very rich, and slowly widening when we last heard from it.

Other operations are going on, probably, but we are not posted concerning them.—*Humboldt (Nevada) Register, April.*

THE PRESCOTT CONSOLIDATED MINING COMPANY OF ARIZONA.

Among the Trustees of this company we notice such names C. D. Poston, delegate from Arizona; Andrew G. Curtin, Governor of Pennsylvania; Rufus F. Andrews, ex-Surveyor Port of New York, etc. The capital stock is rather large, being 100,000 shares at the par value of $100—subscription price, $10.

This Company has been organized for the purpose of acquiring and developing mining properties in Arizona. They have obtained thirty-one valuable mining interests, comprising in the aggregate 29,766 feet, which are highly susceptible of a speedy and profitable development.

The majority of these acquisition are in the immediate vicinity of Prescott, the recently established capital of the Territory, and under the direct protection of the United tates forces, rendering any Indian interference with the works of the company perfectly impossible. The Colorado river is within one hundred and fifty miles, and easily accessible by a good road, with easy grades, and free from danger at all seasons of the year.

The climate of Arizona needs no comment. At no time are the extremes of temperature sufficient to preclude constant out-door labor, and the certainty of fine weather affords extraordinary facilities for the continuous and active development of the Company's interests.

The region abounds in mineral wealth of every description—yielding gold, silver, copper, lead, etc., and the proximity of immense forests of timber, with an abundant of grass and water, render the profitable work of the properties a matter of absolute certainty. Every arrangement has been made for procuring the necessary machinery, so that by the opening of spring active operations will be commenced.

These mines have been located with great care by parties largely experienced in the mining of ores, under the immediate supervision of the President of the company, himself a resident of the Territory for twelve years; and every test, except that of crushing large quantities of the ores, have given the amplest evidence of their extraordinary richness. The location of territorial capital has caused a large influx of population, and labor can be readily obtained at reasonable rates.

One half of the capital stock has been devoted to the securing of mining property, and the balance will be sold in order to procure a working capital.

The services of Col James C. Lane have been secured and he has already gone to Arizona to superintend the immediate establishment of the necessary machinery to push forward with all possible activity the opening and profitable working of the company's property.—*Exchange Papers.*

DR. J. C. AYER'S REDUCTION PROCESS FOR PRECIOUS METALS.

LATEST INVENTION.

The following, from the *Evening Post*, will readily explain its chief features:

"It is claimed for this new process that it is effectual in the disintegration and desulphurization of rock and ores by the application of liquid or liquid solutions while in a heated state. The rock or ore is rendered soft and friable, and may be easily reduced to powder, while the volatile metals are at the same time, expelled and the base metals oxidized. This leaves the gold and silver free for amalgamation

"By the ordinary method of grinding and stamping rock, the gold therein contained is so comminuted, that a large portion eludes the mercury and is lost. However finely the rock may be pulverized, it is found, under the microscope, to be merely split into pieces or chips of stone, beyond the reach of mercury, and which is, of course, lost. In the one case, the metal is lost because it is itself ground and reduced too fine to be obtained; in the other, because it is not released at all. No successful method of overcoming these difficulties has hitherto been discovered, and, consequently, under the system of extraction now in use, miners only get about one third of the gold therein contained.

"Dr. Ayer's process appears to obviate these difficulties, for while it aggregates the precious metals into globules, by the natural action of heat, it destroys the molecular adhesion of the integral particles of the stone, rendering it friable like chalk. It, in fact, disintegrates the rock into its atoms, so that it may be easily rubbed up into powder. So effectual is the atomic separation, that flint glass, or the hardest quartz or agate, is made to absorb water like a sponge. Hence it is claimed that ores treated by it yield nearly all the precious metals they contain (over ninety per cent) for the usual means of extraction. The process not only destroys the rock without dividing the gold and silver, but also expells, by chemical action, any volatile metals, such as arsenic, antimony, or bismuth, whose presence forbids amalgamation by mercury; while, if sulphurets are present, the oxygen of the decomposed water used in the process unites with the base metals, which remain as oxides, and the sulphur, uniting with the hydrogen, goes off in clouds as sulphuretted hydrogen. Hence mines that have been abandoned because they could not, although rich, be profitably worked, for any of the above reasons, may now afford a munificent return, and even the "tailings" of the working mines yield more gold than has hitherto been obtained from the mines themselves by the old method. Highly sulphuretted ores are frequently among the richest that are found, but they have been nearly worthless, in consequence of the insuperable difficulties of extracting the metals from them. Now these difficulties appear to be wholly removed—difficulties which have locked up within the rocks an untold amount of bullion. The great points gained, then, are:

"1. The integral separation of stone into its atoms, which grinding, stamping, or pulverizing can but imperfectly accomplish.

"2 Desulphurization of sulphuretted rocks and ores, and their purification from contaminating metals.

"3. Expulsion of the volatile metals.

"4. Oxidation of the base metals and separation therefrom of the precious metals held in combination.

"And, these points gained, it is estimated that the process will yield a working average, say, from eighty to ninety per cent. of the precious metals contained in any kind of rock or ore, and not less than twice as much as is obtained by any method now in use. But besides this, there is an immense saving in the expense of mining, as the costly machinery and power for stamping are dispensed with, and the apparatus required is cheap, and may be built any where. The following estimate is made:

The average cost of stamping machinery at the mines is $1000 per stamp. (One stamp can pulverize about one ton per day.)

The average cost of machinery to stamp 100 tons per day	$100,000
The average cost of furnaces to disintegrate and desulphurize 100 tons per day	20,000
Saving by this process, of capital invested, for 100 tons per day	$80,000
Assuming that 100 tons of ore are worked daily, containing $100 per ton, they would yield by the stamp process, say 30 per cent	3,000
The same amount by this process, say 80 per cent	8,000
Daily difference in favor of this process	5,000

Thus on an account of 100 tons per day there is not only a saving of $80,000 in the first investment, but also a daily saving of $5,000 in the yield.

"The results arrived at so far have been attained through a course of careful experiments upon considerable quantities of rock, and to the perfect success of these, Dr. Hayes, the State assayer and mineralogist of Massachusetts, Professor Silliman, of Yale College, and Professor Torrey, United States assayer of the mint in this city, testify in the most unqualified manner. Whether the same results will be reached by practical application of the process on a larger scale at the mines, remains, of course, to be seen. So great is the confidence felt in it, however, among capitalists and practical men, that a company has been formed in this city, under the title of the 'Chemical Gold and Silver Ore Reducing Oil Reducing Company,' of which Major-General Butler is president, and other substantial men trustees.

"At their office, No. 64 Broadway, they offer their discovery to the public, and their stock and royalties for sale.

"The subject is attracting, we understand, a good deal of attention among those interested in mining Its importance can hardly be overestimated if no unforseen obstacle shall be developed in the practical operations of the process.

THE TESTIMONY OF AN EXPERT.—Prof. B. Silliman writes to the Boston Adveriiser as follows:

"Permit me to state for the better information of those interested in the subject, what I said or intended to say, in my brief allusion to the silver mines of Nevada in my remarks to a circle of private gentlemen at the Tremont House, last week. After naming the Washoe region, and the Humboldt and Reese river districts, I went somewhat more at length into a notice of the famous Comstock lode, stating that not less than $40,000,000 had been sent into commerce from that wonderful mineral vein since 1860, and that it was now as productive as at any period in its development It was also stated that on a limited stretch of less than 700 feet of this vein, commonly known as Gold Hill proper (where the town of that name is situated,) were numerous small proprietorships, one of (of not over ten feet on the vein) of which has been worked with remarkable profit. This is very different from stating that "the Gold Hill mines alone of all the mines in Nevada had been successful," which seems very strange to the fortunate owners of shares in the Gould & Curry, Savage, Ophir, Chollar, etc., who have the pleasing memories of millions paid to them in dividends.

"I may add in conclusion that, while the remarkable history of the Comstock lode has fixed public attention early and firmly on Virginia City and Gold Hill, the rising fortunes of Humboldt and Reese river mines, and of other less known areas in Nevada, speak hopefully for the immediate future of the Silver State. The amount of silver bullion sent to San Francisco from Reese river in the last six months of 1864, was not less than a half a million of dollars, and the current year will doubtless show a great increase. In the year 1860, the product of the Washoe region was only half a million; in 1864, it exdeeded $16,000,000. Vast areas of silver-bearing lodes to the south and southeast of Austin remain to be explored, and each month is enlarging the scope and increasing the value of this new and unexplored region."

AN AMMONIA ENGINE.

In Paris they are now discussing a scheme to propel omnibuses and other vehicles by ammoniacal gas. Mons. Tellier is the inventor of the engine proposed for the work. Under ordinary conditions, ammonia is a gas, but it can be condensed into a liquid; and when in that state, unless it be restrained by pressure, a temperature below thirty-two degress will restore it to the gaseous state. Mons. Tellier puts liquified ammonia in a reservoir, connected by a pipe and stop-cock with a working cylinder. When the cock is opened, the ammonia assumes the gaseous state, and works the piston as a substitute for steam. It is then condensed by water. for which it has strong affinity. The quantity of liquid ammonia per horse-power per hour is said not to exceed three gallons, weighing twenty-two pounds. The water used to absorb it is saved, and the ammonia is recovered from it and used over again.

For use in this way ammonia is said to have advantages over air. In the gaseous state it occupies more than twelve hundred times its bulk as a liquid; yet liquid ammonia, if the vessels which hold it be surrounded by a frigorific mixture, will not exert a pressure of more than a few pounds per inch, whereas air compressed to yielp equal power would exert a pressure of 1700 pounds per inch. In practice air cannot be compressed to anything near the ex tent of ammonia. Moreover, a pump is necessary to compress air; but ammonia may be condensed by an easier method. The water which contains it being heated, it is driven off and condensed by refrigeration. It is, therefore, considered that Mons. Tellier has found in liquid ammonia what inventors have long and vainly sought in compressed air—a convenient method of storing up power so as to transport it in reservoirs from the place where it is generated to the place where it is required for use; and that the ammonia engine has good work to do for the world in many ways besides that of propelling carraiges.

In 1831, Mr. Goldsworthy Gurney, in his evidence beforce a committee of Parliament on steam-carriages, said that he had experimented on ammonia for this use, and believed it might be applied instead of steam; but he did not propose to apply it until the system of mechanical propulsion was established by steam. Mr. W. Mont. Storm, of this city, also has patented an ammonia engine. As to compressed air as a motor, it is used, in many cases, where steam is inconvenient. As a motor for carriages, it has been tried by men of sufficient engineering talent. Mr. Arthur Parsey and the Baron Von Rathen, in London, tried it in experiments, with results that proved its efficiency; but their constructions were not good in a mechanical sense, and it was evident that their claim that it would work more economically than steam was not sustained.

But the greatest difficulty of all in these means of applying elemental power, is a commercial one. There is not enough novelty in them on which to obtain a patent that will prevent an almost unrestricted competition, as soon as it is proved that machine-carriages can work economically, and their proportions are perfected by men of originality, so that coppyists can safely adopt them and build them at common shop-prices.

But our opinion of ammonnia is that it will not do for tunnel railway or for streets, on account of the expense of preventing leakage and an unpleasant smell from it. In other respects, we are not sufficiently informed to give an opinion of it.—*Artisan.*

COMPRESSING AIR AND GASES.

An improved apparatus, by means of which atmospheric air or gases may be compressed in volume to a far greater degree than has yet been accomplished by other means, such highly compressed air or gas being applicable to various useful purposes, has been provisionally specified by Mr. T. Coughin, of Bermondsey. He proposes a succession of pumps and receivers, the first pump receiving a supply of air from the atmosphere, and forcing the same forcing the same into a receiver, whence it is conveyed to a second pump, already compressed; the second pump is then brought to bear upon the compressed air, which is then forced into a second receiver, and so on to a third or further series, and ultimately into a chamber or receiver of any kind or form, according to the purpose for which it is required. He proposes to make the diameter of the first pump larger than the second, and the second larger than the third, in order to compensate as far possible the power required to actuate each according as the air or gases are more and more highly compressed in each. The pumps are to be set on a suitable foundation, above which, on standards, a shaft and fly-wheel are supported, to be turned by hand or steam-power; on the shaft an eccentric or crank is keyed, in order to work the plunger of the the first pump. The shaft is also provided with a cog wheel or pinion, on each side of which is a shaft and toothed wheel gearing with the central pinion, in order to actuate by similar eccentrics the other two plungers of the pumps. If more pumps are required they may be connected by similar gearing. The toothed wheel actuating the third pump should have a greater number of teeth than the second, in order that it may travel at a slower rate to operate upon the densely compressed atmosphere or gas; underneath, or at the side of each pump, is its receiver, connected by suitable tubes and valves, the whole series of pumps and receivers being thus in communication.

IMPORTANT NOTICE.

TO ADVERTISERS.—Our paper offers a superior medium as an advertising agent, to all those who manufacture or sell machinery or appliances of any kind for Gas, Mining, Water, Sewerage, the production or purification of Oils, &c. &c., not so much on account of a wide-spread circulation, as from the fact that it goes directly to the hands of those who are constantly using and requiring machines and improvements for these branches, and who look hrough our columns for information where to procure them. The class of people who read our paper not only peruse our pages of reading matter, but read the advertisements as well, for the reason that they are directly interested in all things pertaining to their business. We therefore ask, with confidence that we can do them justice, all parties having machinery or improvements of any kind for either of the objects to which our paper is devoted, to send in their advertisements and avail themselves of these advantages. It will be observed that our terms for advertisers are very reasonable.

HYDRO-CARBON GAS.—The invention of Mr. W. Henderson, of Valparaiso, consists in the introduction of dry steam to the retorts containing the coal or other substances, heated to their own intensity, and in preventing any reduction of the temperature during the process of making the gas; by this means he obtains an illuminating gas, consisting of a combination of the hydrogen of water with the volatile carbon of coals, Cannels, and oleaginous substances. The chief feature is the use of retorts with false bottoms, beneath which the steam is admitted.

GAS-LIGHT COMPANIES IN THE UNITED STATES.

Compiled from official sources expressly for the American Gas-Light Journal.

When Chartered.	Town.	State.	Chartered Capital.
1857	Adrian	Mich.	50,000
1856	Akron	O.	20,000
1845	Albany	N. Y.	25,000
1858	Albion	N. Y.	30,000
1851	Alexandria	Va.	106,380
1852	Alleghany	Pa.	200,000
1853	Allentown	Pa.	60,000
1857	Alton	Ill.	75,000
1859	Altoona	Pa.	40,000
1859	Amesbury and Salisbury	Mass.	30,000
1858	Annapolis	Md.	100,000
1858	Ann Arbor	Mich.	25,000
1858	Astoria	N. Y.	20,000
1855	Atlanta	Ga.	50,000
1857	Attleboro'	Mass.	6,000
1850	Auburn	N. Y.	80,000
1851	Augusta	Ga.	80,000
1853	Augusta and Hallowell	Me.	84,700
1860	Aurora	Ind.	10,000
1817	Baltimore	Md.	550,000
1852	Bangor	Me.	120,000
1855	Batavia	N. Y.	32,000
1858	Bath	Me.	65 000
1859	Bath	N. Y.	15,000
1861	Battle Creek	Mich.	15,000
1858	Belfast	Me.	14,000
1856	Bellefont	Pa.	20,000
	Beloit	Wis.	30,000
1854	Bethlehem	Pa.	50,000
1859	Beverly	Mass.	40,000
1853	Binghampton	N. Y.	50,000
1859	Birmingham	Pa.	40,000
1855	Bloomington	Ill.	40,000
1859	Bordentown	N. J.	50,000
1822	Boston	Mass.	1,000,000
1859	Brattleboro'	Vt.	21 000
1851	Bridgeport	Ct.	90,000
1857	Bridgeton	N. J.	50,000
1856	Bristol	Pa.	30,000
1855	Bristol	R. I.	35,000
1859	Brockport	N. Y.	25,000
1858	Brookline	Mass.	17,000
1825	Brooklyn	N. Y.	2,000,000
	Brownsville	Pa.	
1848	Buffalo	N. Y.	600,000
1852	Burlington	N. J.	100,000
1853	Burlington	Vt.	75,000
1859	Burlington	Iowa.	65,000
1861	Calias	Me.	90,000
1852	Cambridge	Mass.	300,000
1852	Camden	N. J.	300,000
1858	Canandaigua	N. Y.	50,000
1856	Canton	O.	19,000
1858	Cape Island	N. J.	80,000
1860	Carbondale	Pa.	16,000
1856	Carlisle	Pa.	30,000
1856	Catasaqua	Pa.	15,000
1858	Catskill	N. Y.	
1857	Chambersburg	Pa.	30,000
1846	Charleston	S. C.	723,800
1851	Charlestown	Mass.	200,000
1858	Charlotte	N. C.	14,000
1859	Charlotteville	Vt.	15,000
1851	Chelsea	Mass.	100 000
1856	Chester	Pa.	35,000
1849	Chicago	Ill.	1,200,000
1857	Chicopee	Mass.	50,000
1851	Chillicothe	O.	40,000
1841	Cincinnati	O.	1,600,000
1859	Citizens', Brooklyn	N. Y.	1,000,000
1860	Citizens', Reading	Mass.	90,000
	Clarksville	Tenn.	100,000
1860	Claremont	N. H.	20 000
1846	Cleveland	O.	200,000
1858	Clinton	Mass.	30,000
1859	Clyde	N. Y.	10,000
1854	Cohoes	N. Y.	50,000
1860	Cold Spring	N. Y.	30,000
1860	Cold Water	Mich.	25,000
1852	Columbia	Pa.	87,500
1852	Columbia	D. C.	44,000
1857	Columbia	Cal.	50,000
1853	Columbus	Ga.	54,000
1850	Columbus	O.	100,000
1858	Concord	N. H.	50 000
1853	Covington and Newport	Ky.	100 000
1854	Cumberland	Md.	60,000
1857	Danbury	Ct.	50,000
1856	Danville	Pa.	30,000
1855	Davenport	Iowa.	56,000
1848	Dayton	O.	50,000
1853	Dedham	Mass.	40 000
1860	Deleware	O.	30,000
1849	Detroit	Mich.	500,000
1860	Dobbs' Ferry	N. Y.	25,000
1854	Dorchester	Mass.	150,000
1859	Dover	Del.	12,000
	Dover	N. H.	
1857	Doylestown	Pa.	50,000
1854	Dubuque	Iowa.	50,000
1858	East Boston	Mass.	133,000
1858	East Greenwich	R. I.	11,200
1861	East Hampton	Mass.	10,000
1861	East New York	N. Y.	50,000
1857	Easton	Md.	9,000
1850	Easton	Pa.	125,000
1856	Eastport	Me.	50,000
1855	Elizabeth	N. J.	100,000
	Ellicott's Mills	Md.	10,000
1859	Elmira	N. Y.	50,000
1852	Erie	Pa.	68 000
1853	Evansville	Ind.	60,000
	Exeter	N. H.	60,000
	Fair Haven	Ct.	20,000
1847	Fall River	Mass.	26,000
1859	Fayetteville	N. C.	25,000
	Fifth Ward (Milwaukee)	Wis.	50,000
1857	Fishkill	N. Y.	10,000
1853	Fitchburg	Mass.	100,000
1859	Flemington	N. J.	20,000
1855	Flushing	N. Y.	20,000
1856	Folsom	al.	
	Fort Wayne	Ind.	40,000
1861	Frankfort	Ky.	50,000
1851	Frederick City	Md.	36,000
1854	Fredericksburg	Va.	72,500
	Fredonia (Natural Gas)	N. Y.	10,000
	[illegible]port	Ill.	20,000

When Chartered.	Town.	State.	Chartered Capital.
1859	Fremont	O	25 000
1856	Fulton	N Y	12 000
1855	Galena	Ill	70 000
1859	Galion	O	25 000
18[illegible]	Galveston	Texas	150 000
18[illegible]4	Gardiner	Me	100 000
1854	Geneva	N Y	75 000
1851	Germantown	Pa	Merged
1859	Gettysburg	Pa	20 000
1854	Glenn's Falls	N Y	35 000
1854	Gloucester	Mass	40 000
1857	Gloversville	N Y	15 000
1854	Grand Rapids	Mich	50 000
1855	Great Barrington	Mass	5 000
1849	Great Falls	N H	50 000
1859	Greenfield	Mass	20 000
1854	Greenpoint	N Y	100 000
1859	Greensboro'	N C	12 000
1858	Greensburg	Pa	30 000
1854	Hagerstown	Md	15 000
	Hamilton	O	15 000
1859	Hannibal	Mo	100 000
1857	Harlem	N Y	350 000
1855	Harrisburg	Pa	100 000
1849	Hartford	Ct	200 000
	Hastings	N Y	
1858	Haverhill	Mass	50 000
1859	Haverstraw	N Y	20 000
1861	Haverville	Mass	15 000
1859	Hempstead	N Y	16 000
1862	Hoboken	N J	100 000
1856	Hollidaysburg	Pa	30 000
1861	Hollyoke	Mass	20 000
1861	Homer & Cortlandt	N Y	40 000
1854	Honesdale	Pa	30 000
1860	Hornellsville	N Y	12 000
1858	Hudson	N Y	50 000
	Hunter's Point	N Y	
1857	Huntington	Pa	18 000
1856	Huntsville	Ala	7 325
	Indianapolis	Ind	150 000
1857	Iowa City	Iowa	40 000
1852	Ithaca	N Y	75 000
1857	Jackson	Mich	25 000
	Jackson	Miss	80 000
	Jackson	Cal	50 000
	Jacksonville	Flor	35 000
1858	Jacksonville	Ind	50 000
1856	Jacksonville	Mo	25 000
1858	Jamaica	N Y	20 000
	Jamaica Plain	Mass	75 000
1856	Jamestown	N Y	25 000
	Janesville	Is	50 000
1858	Jeffersonville	Md	30 000
1858	Jersey City	N J	300 000
1856	Jersey Shore	Pa	15 000
1857	Johnstown	Pa	80 000
	Joliet	Ill	300 000
1858	Kalamazoo	Mich	30 000
1860	Keene	N Y	60 000
1855	Keokuk	Iowa	100 000
1855	Kingston	Pa	50 000
1859	Kittanning	Pa	20 000
1854	Knoxville	Tenn	63 000
1860	Laconia	N H	20 000
1859	La Crosse City	Wis	100 000
1854	Lafayette	Ind	60 000
1856	Lamberville	N J	30 000
1849	Lancaster	Pa	100 000
1856	Lancaster	O	25 000
1855	Lansinburg	N Y	25 000
1849	Lawrence	Mass	200 000
1859	Leavenworth	Kansas	200 000
1856	Lebanon	Pa	26 000
1861	Le Roy	N Y	25 000
1858	Lewisburg	Pa	20 000
1852	Lewiston	Me	100 000
1856	Lewistown	Pa	30 000
1853	Lexington	Ky	100 000
1858	Little Falls	N Y	112 000
1861	Little Rock	Ark	20 000
1858	Lockhaven	Pa	28 000
	Lockport	N Y	100 000
1858	Logansport	Ind	40 000
1849	Louisville	Ky	600 000
1852	Lowell	Mass	200 000
1852	Lynchburg	Va	70 000
1859	Lynn	Mass	55 000
	Lyons	N Y	80 000
1852	Macon	Ga	75 000
1851	Madison	Ind	160 000
1855	Madison	Wis	100 000
1854	Malden & Melrose	Mass	50 000
1852	Manayunk	Pa	40 000
1852	Manchester	N H	100 000
1830	Manhattan (N. Y. City)	N Y	1 000 000
	Mansfield	O	25 000
1854	Marblehead	Mass	40 000
	Marlboro'	Mass	20 000
	Mauch Chunk	Pa	50 000
1857	Marietta	O	50 000
1860	Marion	O	12 000
1858	Marysville	Cal	50 000
1847	Massilon	O	20 000
1855	Meadville	Pa	30 000
	Medina	N Y	2 000
1852	Memphis	Tenn	300 000
	Meriden	Ct	20 000
1859	Metropolitan (N. Y. City)	N Y	1,000 000
1859	Middleboro'	Mass	15 000
1853	Middletown	Ct	50 000
	Middletown	N Y	
	Milford	Mass	20 000
	Milledgeville	Ga	100 000
	Milton	Pa	10 000
1847	Milwaukee	Wis	400 000
1852	Mobile	Ala	200 000
1836	Monroe	Mich	40 000
1852	Montgomery	Ala	100 000
1856	Montpelier	Vt	30 000
1859	Morrisania	N Y	30 000
1859	Morristown	N J	13 000
1854	Mount Holly	N J	16 650
	Mount Vernon	O	50 000
1857	Muscatine	Iowa	50 000
1854	Nantucket	Mass	50 000

GAS-LIGHT COMPANIES IN THE UNITED STATES,

Compiled from official sources for the AMERICAN GNAS LIGHT JOURNAL.

When Chartered.	Town.	State.	Chartered Capital.
1852	Nashua	N H	45 000
1850	Nashville	Tenn	00 000
1858	Natchez	Miss	46 000
	Nevada City	Cal	
1852	New Albany	Ind	200 000
1846	Newark	N J	302 000
1856	Newark	O	8 000
1852	New Bedford	Mass	130 000
1850	Newbern	N C	22 000
	New Britain	Ct	30 000
1851	New Brunswick	N J	100 000
1852	Newburg	N Y	67 000
18 2	Newburyport	Mass	150 000
1857	Newcastle	Del	32 300
1847	New Haven	Ct	250 000
1853	New London	Ct	70 000
1835	New Orleans	La	1,500 000
1853	Newport	R I	130 000
1854	Newton & Watertown	Mass	92 000
	Newton	N J	30 0 0
	New on	P	20 000
	N wtown	N Y	
1823	New York	N Y	1,000 000
1850	Niagara Falls	N Y	15 000
	orfolk	Va	60 000
1853	Norristown	Pa	41 700
1855	North Attleboro	Mass	50 000
	Northern Liberties	Pa	00 000
	North Adams	Mass	425 000
1856	Northampton	Mass	35 000
1853	North Bridgewater	Mass	16 000
1856	Norwalk	Ct	30 000
1859	Norwalk	O	30 000
1854	Norwich	Ct	75 000
1861	Norwich	N Y	12 000
1859	Nyack	N Y	20 000
1860	Oberlin	O	10 000
1855	Ogdensburg	N Y	75 000
1859	Orange	N J	65 000
1852	Oswego	N Y	81 200
1855	Ottawa	Ill	45 000
1856	Owego	N Y	40 000
1860	Owensboro	Ky	50 000
1856	Paducah	Ky	75 000
1861	Painsville	O	40 000
1854	Palmyra	N Y	12 000
1847	Paterson	N J	125 000
1850	Pawtucket	R I	75 000
1855	Peek kill	N Y	31 000
1850	Penn Yan	N Y	12 000
1855	Peoples' Chicago	Ill	500 000
1852	Peoria	Ill	100 000
1841	Petersburg	Va	120 000
1855	Philadelphia	Pa	3 000 000
1835	Piqua	O	50 000
1854	Pittsburg	Pa	300 000
1854	Pittsfield	Mass	50 000
1860	Placerville	Cal	30 000
1859	Plainfield	N J	25 000
1858	Plattsburg	N Y	16 000
1760	Plymouth	Mass	40 0 0
1860	Port Chester	N Y	50 000
1849	Port Jevis	N Y	20 000
1859	Portland	Me	300 000
1859	Portland	Oreg	50 000
1851	Port Lavacca	Texas	50 000
1855	Portsmouth	N H	70 000
1855	Portsmouth	O	50 000
1856	Portsmouth	Va	100 000
1850	Pottstown	Pa	20 000
1850	Pottsville	Pa	110 000
1848	Poughkeepsie	N Y	84 000
	Providence	R I	1 000 000
1858	Quincy	Ill	300 000
1853	Quincy	Mass	00 000
1857	Racine	Wis	
1858	Rahway	N J	43 000
1848	Raleigh	N C	50 000
1851	Reading	Pa	25 000
1859	Richmond	Va	100 000
	Richmond	Mass	341 975
1859	Richmond County	N Y	40 000
1852	Ripley	O	
1857	Rochester	N Y	25 000
1854	Rockford	Ill	200 000
1854	Rock Island	Ill	40 000
1852	Rockland	Me	100 000
1854	Rome	N Y	50 000
1854	Roudout and Kingston	N Y	35 000
1859	Roxbury	Mass	65 150
	Rutland	Vt	150 000
	Saco	Me	20 000
1857	Sacremento	Cal	71 6 0
1859	Sag Harbor	N Y	500 000
1858	Saint Albans	Vt	20 000
	Saint Johnsbury	Vt	20 000
1857	Saint Joseph	Mo	15 000
1859	Saint Louis	Mo	80 0 0
1857	Saint Paul	Min	50 000
1856	Salem	N J	600 000
1850	Salem	Mass	200 000
1859	Salem	O	30 000
1859	Salisbury	N C	200 000
	Salisbury Mills	Mass	25 000
	Salmon Falls	Me	14 600
	San Antonio	Texas	1 250
1854	Sandusky	O	25 000
1859	Sandwich	Mass	74 000
1852	San Francisco	Cal	75 0 0
	San Jose	Cal	100 000
1858	Saratoga Springs	N Y	2,000 000
	Saugerties	N Y	39 000
1849	Savannah	Ga	80 000
1851	Schenectady	N Y	200 000
1858	Scranton, Gas and Water	Pa	50 000
1857	Selma	Ala	100 000
1856	Seneca Falls and Waterloo	N Y	20 000
	Shreveport	La	80 000
1856	Sing Sing	N Y	40 000
	Smyrna	Del	
1860	South Adams	Mass	10 000
1859	South Brige	Mass	5 000
	South Boston	Mass	200 000
	Springfield	O	200 000
1854	Springfield	Ill	75 000
1848	Springfield	Mass	100 000
1855	Stamford	Ct	6 250
1857	Staten Island	N Y	150 000
1853	Staunton	Va.	118 000
	Steubenville	O.	150 000
	Stockton	Cal.	50 000
1848	Syracuse	N Y	125 000
	"		
	Tamaqua	Pa	40 000
1859	Tarrytown and Irvington	N Y	70 000
1853	Taunton	Mass	100 000
	Terre Haute	Ind.	100 000
	Thompsonville	Ct	25 000
	Tiffin	O	25 000
1858	Toledo	O	150 000
1847	Trenton	N J	150 000
1848	Troy	N Y	200 000
1856	Urbana	O	30 000
1849	Utica	N Y	80 000
1853	Vicksburg	Miss	66 000
1859	Vincennes	Ind	25 000
1863	Virginia City	N	2 500
1858	Walden	N Y	100 000
1853	Waltham	Mass	30 000
1857	Ware	Mass	30 000
1861	Warren	O	20 000
1854	Warren	R I	500 000
1855	Washington	D C	15 000
1859	Washington	N C	20 000
1848	Washington	Pa	100 000
1854	Waterbury	Ct	00 000
1852	Waterford	N Y	20 000
1852	Watertown	N Y	25 000
1856	Watertown	Wis	30 000
1858	Wautome		20 000
1857	Waverly	Miss	60 000
1854	West Bridge		100 000
1852	Westchester	Pa	25 000
	Westfield	Mass	20 000
	Weston	O	50 000
1857	West Point	N Y	100 000
1853	West Troy	N Y	75 000
1850	Wheeling	Va	20 000
	White Plains	N Y	50 000
1856	Wilkesbarre	Pa	1,000 000
1850	Williamsburg	N Y	30 000
1858	Williamsburg	Va	70 000
1857	Williamsport	Pa	12 000
1859	Williamantic	Ct	60 000
1853	Wilmington	F C	200 000
1852	Wilmington	Del	36 000
1854	Winchester	V	20 060
1861	Windsor	Vt	20 000
	Woburn	Mass	10 900
1856	Woodstock	Vt	82 600
1853	Woonsocket	R I	25 000
1850	Wooste	O	160 000
1849	Worcester	Mass	
1855	Xenia	O	40 000
1854	Yonkers	N Y	100 000
1849	York	Pa	40 000
	Yorkville	S C	20 000
1858	Ypsilanti	Mich	20 000
1850	Yreka	Cal	30 000
1848	Zanesville	O	44 000

When Chartered.	Gas-Light Companies in the British Provinces of N. A.	Provinc	Chartered Capital.
1854	Belleville	C W	33 040
1854	Brankford	C W	32 000
	Brockville	C W	50 000
	Chatham	N B	50 000
1854	Charlotte Town	P E I	50 000
1857	Cobourg	C W	30 000
	Dundas	C W	30 000
	Frederick	N B	50 000
1843	Halifax	N S	160 000
1850	Hamilton	C W	125 000
1848	Kingston	C W	80 000
1853	London	C W	100 000
1847	Montreal	C E	400 000
1854	Ottawa	C W	40 000
1859	Point Levi	C E	25 000
1859	Port Hope	C W	28 000
1847	Quebec	C E	200 000
1845	Saint Catherin 's	C W	80 000
1859	Saint Hyacinthe	C E	15 000
	Saint John	N B	170 003
	Saint Johns	N F	50 000
1858	Sorel	C E	14 000
1848	Toronto	C W	400 000

When Chartered.	Gas-Light Companies in Cuba, Mexico, South America & New Zealand,	State	Chartered Capital.
1857	Callao	Chile	
	Cardenas Cubana	Cuba	50 000
	Compania	Hav'a	500 000
	Cienfugos	Cuba	
	Guanabacoa	Cuba	
	Regla	Cuba	
	Trinidad	Cuba	
	Guiness	Cuba	
	Guyaquil	S A	150 000
	Havana	Cuba	2,000 000
	Lima	Peru	100 000
	Maranham (Ghartered)		
	Matanzas	Cuba	50 000
	Mexico City	Mex	550 000
1854	Montevideo	S A	500 000
	Para (Ghartered)		
1857	Rio de Janeiro	S A	1,000 000
	San Iago	Chile	500 000
	Saint Jago de Cuba	Cuba	450 000
	Valparaiso	Chile	500 000
	Vera Gruz	Mex	500 000
	Ville Clara	Cuba	150 000
	Auckland	N Z	

Gas Companies of which we have not received their date of Charter or amount of capital.

Amsterdam, N. Y.	Elsworth, Me	Hollis Springs, Miss	Naugatuck, Con
Belleville Ill.	East Saginaw, Mich	Johnstown, N. Y	Parkersburg, W. V.
Balston, N. Y.	Fond-du-lac, Wis.	Kansas City,	Princeton
Bucyrus, O.	Georgetown, D. C.	La Porte, Ind.	Reading, Mass
Canta, N. Y.	Genesee, N. Y.	Medford, Mass	Richmond, Ind
Cooperstown, N. Y.	Grafton, Va.	Middletown, Pa	Rockville, Con.
Corning, N Y.	Greenville, S. C.	Milton, Mass	Rome, Ga.
Citizens Gas Co. San Francisco	Hanover, Pa	Mount Vernon, N. Y.	Salem, N. C
Danvers, Mass.	Henderson, Ky.	Murfreesboro, Tenn.	Honolulu.

WATER.

PAPERS ON HYDRAULIC ENGINEERING.—HYDRANT IMPROVEMENTS.

By Samuel McElroy, C. E.

The following abstract of the patents which have been issued from 1850 to 1864, is given to illustrate the direction which improvements have taken, over the original form described. The hydrants not intended for fire-service have been noted as "drinking" hydrants, as belonging to a different class, but serve to present the same general idea of progress.

Abstract of Hydrant Patents, 1850 to 1864.

1850, 1851, 1852.—No issue.

1853, Dec. 13—James Cochrane—Drinking hydrant; elastic chamber for ventage of charge.

1854, Aug. 22—C. M. Alberger—Hose hydrant, hitching-post, and street washer, with two-way cock.

1854, June 6—N. W. Speers—Hydrant cap.

1855—No issue.

1856, Nov. 11—Robert Lawson—Device for ventage.

1856, May 27—C. K. Landis—Pump hydrant; application of steam, with float, slide valve, and double valve.

1856, May 6—C. J. Cowperthwaite—Drinking; protecting case and nozzle, handle and slide valve.

1856, April 22—John Culver—Device for ventage.

1856, April 8—E. J. Baker—Device for ventage.

1856, April 1—Henry English—Supply through slotted ports, with square shanked valve.

1856, Jan. 15—C. J. Cowperthwaite—Drinking; supplemental valve for disconnection, hand lever, and and elastic cap.

1857, Nov. 10—Lucien Moss—Gas-pipe and burner within case, to thaw or prevent freezing.

1857, June 23—G. P. Perrine and J. E. Boyle—Drinking; hollow piston-rod and nozzle, operated by lever and water head.

1857, June 16—Joel Bryant—Drinking; supply and discharge ports with double cylinder, operated by rotating handle.

1857, June 9—W. Bramwell—Outer case, seat and washer, for disconnection.

1857, June 2—W. W. Binny—Drinking; worked by lever and spring valve.

1857, April 21—A. Hoagland—Piston operated by crank-arm; ventage by special lifting valved piston.

1857, Feb. 3—W. Fields and S. Gerhard—Drinking; pumps by combined plungers and lever.

1857, Jan. 20—James G. Morgan—Drinking; air chambers and cistern for ventage.

1858, Dec. 21—S. P. Francisco and W. P. Dickinson—Piston for ventage, by compressed air.

1858, Oct. 19—James Swan—Elastic and metal tube for ventage.

1858, Aug. 31—James R. Higgs—Disconnecting valve case, with three valves and one supplemental valve and automatic vent valve and rod.

1858, March 2—John Parham—Arrangement of vent, and drops main valve below the supply branch.

1858, March 2—James Powell—Drinking; double-chambered cylinder, two plungers, and ports, operated by cam and arm.

1858, February 9—K. Goddard—Drinking; upper and lower case; spring valve, operated by plunger and weighted handle.

1858, Jan. 26—W. Race and S. R. C. Matthews—Internal case, with annular and supplemental valve for disconnection.

1858, Jan. 5—Richard D. Charms—Drinking; improved three-way cock, with two air chambers.

1858, Jan. 5—John Hyde—Application of syphon tube for ventage.

1859, Nov. 1—W. James—Drinking; movable cylinder and fixed piston.

1859, Oct. 18—J. H. Carter—Drinking; filtering application.

1859, Oct. 4—C. L. Stacy—Side valve chest, with cup disks and vent improvement.

1859, Oct. 4—N. B Marsh—Drinking; double plungers, with perforated cylinders.

1859, June 7—J. Fay—Drinking; double plungers, with perforated cylinders.

1859—June 7—J. Fay—Drinking; ball valve and rod, with supplemental spring valve to prevent waste.

1859, April 19—W. Race and S. R. C. Matthews—Drinking; internal supply tube, cap spring and closed seat.

1859, April 5—J. Bryant—Annular tube through main valve and stem, with perforated vent top.

1859, Feb. 15—F. H. Bartholomew—Supplemental ball valve and joint for disconnecting, with waste chamber and plug.

1860, Sept. 4—Albert Fuller—Combined cylinder and case for disconnecting, motion optional for vent valve and rod.

1860. June 12—Alfred Johnson—Drinking; diaphragm and spring valve to prevent waste.

1860, Jan. 24—G. W. Robertson—Drinking; upper and lower chambers, non-conductor packing in upper.

1861, Sept. 10—D. C Cregier—Supplemental disk valve, with valve trunk, for disconnection.

1861, Sept. 10—G. H. Rogers—Drinking; guide tube, flanged ring and conical plug, with spring induction valve.

1861, Sept. 3—L. P. Black—Pump or hydrant; earthenware plunger and rubber packing.

1861, Aug. 20—B. F. Moore—Main valve seat, with thimble, band, and valve on main rod.

1861, Aug. 13—G. M. Selden—Independent valves, worked by sliding valve splindle.

1861, May 14—Joseph Neumann—Drinking; case and joint above main valve to prevent action of sand, &c.

1861, Feb. 19—John P. Kenyon—Plunger and spout tube, for usual valve and seat.

1862, Oct. 14—Samuel McElroy—Valve and seat on supply branch, operated externally, with open hydrant tube.

1862, June 10—J. Gibson and M. Herberger—Drinking; elbow, screw-shanked cork, annular gasket, scutheon and clamp nut.

1862, June 10—G. J. and H. W. Ross—Drinking; rotory eduction pipe and spring, connected with plug in supply branch.

1862, May 13—S. H. Brown—Inclined planes, slide valve, and double-armed lever.

1863, June 9—J. Register—Combined street and house supply cocks and metal casing.

1863, May 26—John G. Murdock—Wasting open-mouth barrel, nozzle, valve, gaskets, and ventages.

1863, March 3—John McClelland—Sliding valve with slotted arm and crank motion.

1863, Jan. 20—Richard Stileman—Sluice valve and casing to hydrant stem.

It will be observed that a number of patents refer to frost vents and frost prevention, one being for the use of gas jets within the hydrant cases; the remainder refer chiefly to methods of disconnecting the hydrant tube, without shutting off the water from the service main with which the branch connects, by the use of supplemental valves brought into action for this purpose; one covers the use of a tube free from the internal valve rod and the elevated valve seat.

The vent arrangement cannot be better simplified than in the Philadelphia, or some similar methods of positive motion, or the automatic tube, and the elaborate substitutes are not likely to be generally adopted.

The arrangement for di connecting may be described, in principle, by reference to Mr. Cregier's hydrant which is simple in character, for its purpose, as adopted to a stand pipe head.

This head is made with a movable top secured by bolts; its removal permits the detachment of a guide pin to the ordinary valve motion, so that the motion of the rod becomes rotary, and thus operates a screw shaft and supplemental valve fitted on the rod below the line of the hydrant branch; this valve rises to a seat adapted to it, just above the branch, which it thus shuts off from the tube, and the tube being jointed above this seat can be lifted out.

This involves the use of a second valve seat, with a composition valve, valve-shaft, and trunk, and rod extension, as all these parts must be protected from decay.

The advantage claimed for these disconnecting devices is an avoidance of the use of the service stop-cocks on the special line of main to which the hydrant is attached, which cuts off the house supply while the removal and replacement takes place. With hydrant bends leaded in, the time of melting is, of course, much longer than where face joints are made, but in any case the occasions of removal are not frequent, and they can be made at a time of day when house service is nearly suspended. Boston, with 1451 hydrants in 1861, replaced 70; at this rate the term of service is about twenty years average in position, an average which does not warrant any expensive or complicated addition to the hydrant itself. Of 1220 hydrants in Brooklyn in 1863, 39 required removal, giving a much longer average of service. It is doubtful, therefore, whether the range of invention has apprehended the correct line of improvement in these appurtenances.

It is somewhat singular, also, that no importance seems to have been given to the use of tubes of enlarged calibre, or with greater freedom of discharge, with one exception, the precise size of hose-butt, apparently, having controlled this matter.

The arrangement, previously noticed as having been introduced in Brooklyn and in one or two cases in New York, and known as the *Lowry Hydrant*, has superior advantages in the discharge calibre of its tube. This is a "flush hydrant," and used generally at intersections of street mains. A puppet valve and seat is placed on the top of the main, by suitable connexions, the valve being worked by a rod in the usual way; the head of the tube is fitted, when in use, with a screw cover, carrying four or more hose nozzles; according to Brooklyn practice, the cap is removed when a fire is over and stored in some selected, adjacent place, and and a heavy cast iron cover substituted for ordinary street wear.

The effect of this arrangement is to increase the hydrant discharge and to concentrate several hose lines at one point. If the fire is near the hydrant much hose friction is saved; but if distant this friction is increased. Compound nozzle, are only open to the objection, in experience, that the hose which is first attached, must be shut off, to admit a second, and so with the third and fourth, and much contention results between the firemen; it is also objectionable to have part of a hydrant apparatus stored away from it, involving delays and difficulties in finding and attaching

it: if placed at street intersections, in many cases the intervals must be great between such hydrants and the hose service thereby embarrassed; while their expense has hitherto restricted their adoption.

In view of the foregoing experiences, the *open-throat hydrant*, was designed in order to meet and remedy valid objections to existing arrangements.

As will be observed, this device consists of a vertical tube which can be adapted to any form of head, connected by a face joint with a hub which carries the valve seat, and receives the branch main, or can be so formed as to make a T branch of the street main. This dispenses with the usual bend and its parts, and brings the valve, the seat, and the vent down to the branch main level, and consequently below frost. The motion is external, by a simple bevel geer, which is cased in, within the hydrant case and is readily accessible.

An improvement is also suggested, in making the hydrant tube with a slight upward flare, so that in case of ice-formation within it, at any point above the valve chamber, the first water pressure from the opened valve, would free the ice-cylinder, so as to permit an active thawing current out of the nozzle. Another improvement is suggested as to the nozzle, which is made with a compound form, so that unscrewing the outer hose cap will give the usual size nozzle and unscrewing the outer nozzle itself will give a full size opening of four inches and upwards, for the steamer suction pipe.

The advantages secured by this design may be thus summed up:

1. It is not restricted to location at main pipe intersections, although it may easily be adopted to any calibre of main, and to use as a "flush" hydrant with several nozzles.

2. It secures, without much increase of cost, twice the usual area of hydrant tube free from all working parts and an important increase of head on hose or engine connexions.

3. It provides a hydrant nozzle, of four inches or two and a quarter at will, so that 'steamers" may use the larger without loss of power by suction as now required, and is easily adapted to either "flush" or "stand-pipe' head.

4. Its automatic vent is placed below the valve seat and frees the hydrant lower than the hydrant branch.

5. The hydrant tube and valve motion may be removed and replaced without melting or making lead joints, or disturbing any part of the hydrant branch.

6. The workmanship of the valve and seat may be made more perfectly, from easier access.

7. The valve trunk can be thrown back and the valve chamber enlarged to any desirable extent to secure ample water way, and any desirable amount of power or speed may be given to the valve motion.

8. The valve motion being much deeper, is not choked by ice, in case the hydrant tube is frozen above it hydrant branches not being liable to freeze, and the tube may therefore be readily thawed when the valve is opened.

9. The valve and valve-seat cannot be obstructed by lodgment of sand or gravel, and the screw shaft is protected from injury.

10. The valve seat hub may be made of any form desired for permanent attachment to the hydrant branch.

SUMMARY.—The foregoing discussion of the office and methods of distribution systems, progress of fire engines, conditions of fire service, and defects of distribution, illustrates, in the facts and principles presented, the need of the most careful and liberal attention to the details of water supply, so as to conserve and realize their legitimate office.

We have it presented as a leading principle, that the cost of water supply and the annual expenses of administration, are largely exceeded in scale, by the universal and disastrous losses by fire. It is strange that people so practical as we are, so prompt to remedy and prevent evils which occur to property and contingencies which threaten investments, should overlook the importance of the argument on this point, which presents itself in nearly every successive daily paper, and swells into an overwhelming annual aggregate, it is so, nevertheless. Water supply is generally dealt with as a luxury, with which the age of gold, rather than of brass or iron, is more particularly concerned, and the engineer must "make friends with the mammon of unrighteousnes" and be able to demonstrate comforting incomes, before his plans can be adopted, or looked upon with favor. Here, in Brooklyn, with a confirmed position in population and wealth, it still required not less than five years of patient and continous effort to carry the measure, which was twice voted down by the citizens; but the person who would suggest a public election on the question of abandoning the supply, would not be a very popular man now. In all matters of this kind, a few men are always ahead of their age, and are generally unrewarded when they succeed, except, perhaps, in the consciousness of a public sanitary achievement.

We also observe the necessity of keeping the details of supply, as progressive as the appliances of fire service. The introduction of steam fire engines is destined before long, to work a radical change in all the systems of fire protection, as to the paid department of workmen, the methods of application, and the systems of insurance; and our water supplies must be adapted to such changes in method, as a sequence, which ought, in fact, to have been an anticipation.

With regard to the improvement of distribution service mains in calibre and arrangement, which have been discussed and are abundantly justified by the details of experience presented, it need only to be said that this is requisite for all domestic uses, as well as fire service. It is to be hoped, that the day is not far distant, when by common consent, the present practice of niggardly restriction in service outlay, will be abandoned for the true economy of wise expenditure in adequate mains at the outset, and a careful avoidance of annually accruing evils, which "he who runs may read." This is a most important condition of improvement.

In the same scale of correct practice we may certainly include the improvements subjected in hydrants as to their intervals of position, their details of construction, their sewer drainage, and their use, under a more carefully subdivided system of fire service. A general reconstruction of this kind may seem formidable at first sight but it does not merit any special apprehension as to cost, or trouble in adoption. It belongs to that order of improvement, which we might term "stratified" since it is but a step or two gained, in a system of progress; which the demands of the age make imperative and the sources of economy, in losses prevented, most amply justify.

The whole discussion of this subject belongs to that class of questions, which it is difficult to exhaust or fully present in their attendant arguments and we can only indicate, at present, the general course of examination, with the hope that others may assist in its proper conclusion.—*Franklin Institute Journal.*

SHOE-TIES AND BOOT-LACES DANGEROUS TO THE WORKING CLASSES

It is a pity that the revolution of fashion has put away the usage of buckles as fastenings for boots or shoes amongst our working population, because neither a boot-lace nor a shoe-tie is so much to be depended on.

In a social point of view the boot-lace is a ruinous loss to the house-wife who has a large family, and her hand is never out of her pocket to supply it. People in a higher position can scarcely form any idea of the yearly expenditure of poor families alone for these frail unserviceable cords, or strips of leather. Nor is this the only point in which they are to be condemned; for (quietly be it spoken) they have been the fruits of many a "coroner's inquest." In the ship-yards they are guilty, as elsewhere, of tripping little rivet-boys, as well as men, into eternity.

But this is not the only argument against their usage. You must count uncomfortable journeys, and the slovenly swings of the loose lace painting your polished boot with mire every stride, until, probably, some friend calls your attention to it. You must have sprained ancles, stockings holed, and awkward gait, to be the result. Ask the workman how many inconveniences he has had from them,—how many heart-palpitating races he has had through their use to catch the workshop gates open at six o'clock in the morning,—how many quarter days he has lost. Ask the workmen how many oaths they have sworn while their patience has been strained and tampered with by laces cracking at every twitch, and having them to do and undo; and then, after all, to be incommoded. The boot-lace, or shoe-tie, is one of the greatest of pests they have to deal with: and, therefore, one cannot but think that the sooner the old-fashioned buckle (somewhat modernised) is adopted the better. The radesman of the future, then, who rescues the British workmen from the slavery of such dangerous shoe-fastenings as have been commended on, is worthy of all the patronage that will ensure his permanent respectability.—*English paper.*

LIFE.

The following beautiful disquisition upon life, says the Philadelphia "Evening Bulletin," occurs in a sermon delivered by Rev. E. E. Adams, in the North Broad street Presbyterian Church, in that city:

"There is life in the lichen that clings to the shaded rock, and drinks the cold drops of the mountain; there is life in the fire fly that lights up the marsh with his evening ray; there is life in the lark that hails the orient sun with a psalm more sweet, and not less glorious, than the notes of Haydn and Beethoven; there is life in the lion who shakes the wilderness with his terrible roar, sending horror through every wild pulsing heart. there is life in the eagle as he sits in solitary grandeur on his alpine height, or sails on steady pinion above the clouds that crown the Andes; there is still higher life in a speechless child just opening its eyes to the light, and with pure lips in its first smile; there is life in boyhood, glorious in its fresh ambition, in its unnamed aspirings; there is life in girlhood, the charm of beauty and innocence playing on the cheek as if the smile of God were there; there is life in manhood, and in the herculean arm, in the brow that rivals Jove's, and the eye that shoots out the fire of Mars. Measure, if you can, the mental life of Plato!—the depth and compass of Webster! Fathom the intellectual and moral depths of Moses and Paul. Take the life of humanity, let it be represented by all its best qualities in a single human being. Give him the frame of Sampson, the intellect of Lord Bacon, the soul of Payson or St. John. the beauty and grace of Alcibiades, the song of Handel or Mozart, the oratory of Cicero, or Pericles, or Clay, the devotion of Daniel or Paul, the executive genius of Alexander, the science of Humboldt the statesmanship of Washington, and the social nature of Burke, the muse of Shakspeare, the chivalry of Gustavus Adolphus, and the piety of Daniel or Joseph—and let him stand forth among his species to defend, to enlighten, to win.

Let him shed his great light over the earth. Let him reform Governments, revolutionize customs, awaken thought, inspire devotion, banish abuses, elevate life and fill the age with new, inspiring, grateful, holy sentiments, feelings and resolves. Let him impart something of his great nature to humbler mortals; let him speak in majesty and tenderness to us, and be before us the way, the truth and the life—the highest standard of manhood, the living depository of all human greatness and goodness—all that is mighty in the arm of man, all that is profound in his intellect, all that is precious in friendship, all that is sublime and blissful in holiness—and I will tell you that the life of Christ is infinitely

more! Angels cannot reach it, seraphs cannot know it; it is the life of God dwelling in the soul, it is holiness that no spot darkens—love that fills every capacity and expels every fear. It is eternal life in fullness, in variety, in beauty, in strength, in joy, in duration. If there is anything rapturous in song, anything exalted in character, great in thought and achievement, it is in this life."

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AND

AMERICAN GAS-LIGHT JOURNAL,

PUBLISHED ON 2D AND 16TH OF EVERY MONTH.

JAMES W. BRYANT, ... EDITOR.

MONDAY, JULY 3, 1865.

☞ We shall have twenty or thirty vols. of our last year's issue bound, which we will furnish to subscribers at $4 each, or non-subscribers at $5.

We have engaged the services of Doctor James S. Jones to aid in the Editorial and business departments of the Journal. He will be found at the private office, 111 Pearl street.

PRINCE'S METALLIC PAINT—We invite attention to the advertisement setting forth the qualities of this superior article of Paint, and we feel assured that when once used, it will prove itself to be one of the most indestructible and useful Paints now known, for covering either tin iron or wood. The general agent is Mr. Daniel Sloan, 115 Liberty street.

GOLD IN NEW ZEALAND.—Since the discovery of gold in Otago in 1861 the yield has greatly increased.—Otago alone has exported 1,705,677 ozs. of the precious metal. If we take £3 17s. 6d. as the local current value of the ounce, we have an increase of £6,610,374 5s. to the wealth of this province. During the first quarter of the present year, according to the authentic Government returns, the yield has been 55,713 ozs.—*New Zealand Examiner.*

OIL IN CALIFORNIA

According to the Colusa Sun, boring operations have been commenced in earnest in Colusa county, by Messrs. Rowe & Fleeson. Machinery for that purpose is already on the ground. The point selected is about a quarter of a mile below Simmons' Spring. They have commenced boring by hand; and in the mean time these gentlemen are having a twenty-foot overshot wheel constructed, to be run by the water of Sulphur creek, which they will soon be able to employ in driving their machinery. As this work will test the fact of the existence of oil in productive quantities in that district, Messrs. Rowe & Fleeson have appealed for assistance in this pioneer work from other parties interested in ground which will be developed thereby. They propose to receive subscriptions for the successful prosecution of the work, for such amounts as parties may deem best, for which amount they will issue certificates for double the amount subscribed, payable whenever a flowing of oil is obtained. The plan is a wise and proper one, and eminently worthy of being adopted in other localities similarly situated.

From the above it will be perceived that the problem of being able to find flowing oil wells in California is still unsolved. There is, however, no lack of confidence manifested as yet in the ultimate result of the efforts in progress. We can have very little hope that all will be successful, but the idea that all will fail has not yet entered into the mind of any intelligent man who has devoted any special attention to the investigation of the subject of petroleum in California. The finding of a single well, even, will produce quite a furor among the hundreds and thousands who are now anxiously waiting for the first strike.—*San Francisco Mining Press.*

POCKET HANDKERCHIEF ART.

When we look round (and in our pockets) at various articles which are made in enormous quantities for the use of particular classes, it seems wonderful, in the first instance, how manufacturers are found who undertake, at a large pecuniary risk, the production of such things; and also, where the purchasers are to be met with who render these speculations remunerative.

Amongst many other matters which are curious in their way as examples of the condition and progress of taste, is art as it has been shown for at least fifty years in pocket-handkerchiefs. These are in many ways singular, and deserve a little passing attention. A long time since, we can remember pocket-handkerchiefs for children on which there were boys and girls at play, cottages, lambs, shepherdesses, and a variety of other devices. And there was no lack of picture pocket-handkerchiefs for those of older years; for sportsmen and others there were printed on these articles representations of fighting-cocks, dog-fights, hunting scenes, stage-coaches, and horses; and even recently, there have been shown in this way ships and steamers of various kinds, and conspicuous amongst them the "Great Eastern," in divers positions; groups of sailors with the Union Jack and other devices; soldiers of the calvary and the line; parties of pitmen, navigators, cotton spinners, and those who form representative figures of large classes.

In our time we have noticed many peculiar hobbies of collectors, some having bestowed an extraordinary degree of pains and industry in collecting play-bills, election squibs, carricatures, &c. We once knew a collector who had, at considerable expense, purchased little pieces of the ropes by which notorious criminals had been put to death, and the instruments with which murders had been committed. This, however, is, we hope, a rare kind of collecting; but it would not be so singular or objectionable if some persons may have been minded to collect picture handkerchiefs. They would present a curious illustration of passing events. We should find portraits of George III. and the Princess Charlotte, William IV. and Queen Adelaide; Earl Grey, Lord Brougham, and their associates in the passing of the Reform Bill; then of Lord Palmerston, Sir Robert Peel, Bright, the lamented Cobden, Garibaldi, and so on. There would also be representations of Tom Spring, Tom Sayers, and many others who have achieved fame in the fistic line. Thurtell and other murderers have in this way been handed down to detestation; and such events as Ross's voyage to the North Pole, the burning of the Tower of London and the Royal Exchange, the shooting of the elephant in the strand, which have shared a large amount of public attention; also views of noted buildings and large towns, have all been thus depicted more or less graphically.

Some of these illustrations are printed on humble cotton of various tints, others on silk of an expensive kind; and, no doubt, before the days of illustrated publications, the picture work of this kind was not without its use, however tasteless or objectionable the application of pictorial art in this direction may for the most part have been.

GOLD.—About the year 14 of the Christian era, the annual product of gold and silver was $5,000,000, in 1492 it was only $250,000, in 1853 it was $285,000,000; and in 1863, $240,000,000. In the year 14 also, the gold and silver in existence is estimated at $1,327,000,000, and in 1863 at $10,562,000,000. The whole amount of gold and silver obtained from the earth from the earliest periods to the present time, is estimated at $21,272,000,000.

PETROLEUM REVIEW.

June 16.—Receipts to day are 569 bbls. The market for Crude is dull and nominal, at 34½c. Refined is firmer but quiet at 52 to 53cts. for bonded, and 71 to 72 cts. for free.

June 17.—Petroleum is a shade firmer; we quote Crude at 34½ to 35 cts. Refined in bond at 52 to 53 cts. and do free at 70 to 72 cts.

June 19.—The market is dull and somewhat unsettled, prices at the close are nominal at 34½ to 35 cts. for Crude; 52 to 53 cts for Refined in bond, and 71 to 72 cts. for Refined, free.

June 20.—Receipts to day 2,046 per Erie. The market is a shade firmer, but the business is only moderate; we quote Crude at 34½ to 35 cts. Refined in bond at 52 to 53 cts. and Refined, free, at 72 to 73 cts.

June 21.—Receipts to day are 2,966 bbls. including 2,696 per Erie, 130 per Penhoon, and 140 per Camden, the market is moderately active and firmer; sales at 35 cts. for Crude, 53 to 54 cts. for Refined in bond, and 72 to 73 cts. for do. Free.

June 23.—Is only in moderate demand, and prices favor the buyer; we quote at 34½ to 35 cts for Crude, 52 to 53 cts. for Refined, in bond, and 72 to 73 cts. for do. free.

June 26.—The market for Crude is still very dull and prices remain about the same, 34½ to 35 cts. Refined is scarce and pretty firm at 52½ to 55 cts. the latter choice White; Free is dull, the receipts are 1,623 bbls.

June 27.—Crude is firmer and in fair demand. sales of 750 bbls. at 35 cts. Refined in bond is buoyant at 52 to 53 cts. the latter rate for White; Free is dull at 72 to 73 cts.

June 28.—There has been more activity in the market for Crude since our last; prices have advanced; the market closes to day firm at 35 to 35½ cts. Refined in bond has also met with a brisk demand; the supply is light and prices are better, closing firm at 53 to 55 cts. Refined free has also ruled very firm, closing at 73 to 74 cts.

June 29.—Receipts to-day, 2,592 bbls. Crude is firm at 35 to 35½ cts. Refined in bond is easier; sales of 500 bbls. at 52 to 54 cts. Refined free, is quiet at 73 to 74 cts.

June 30.—Crude is firm at 35 to 35½ cts. Refined in bond at 52 to 54 cts. do. free is steady at 72 to 74 cts. Receipts to day are 722 bbls. including 654 per Erie, and 68 per Camden.

NEW YORK MINING EXCHANGE.

New York, July 1, 1865.

	Bid.	Asked		Bid.	Asked
Copper Stocks.			***Gold Stocks.***		
Azte	7⅛	9	Benton	1	1¼
Bedford	1	1⅛	Consol'd Gregory	25	28⅜
Boston	4⅛	5⅛	Corydon	—	3
Caledonia, A. P.	10	12	Gunnel	9¾	4⅛
Canada	3¼	4	Great Western	—	8
Carp Lake	3	5	Hope	—	9
Central	65	70	Isaac's Harbor	⅜	⅜
Columbian	—	24	Manhattan	—	9
Copper Falls	34½	38	Mariposa	44	44½
Clifton	—	$1	Montana	½	1
Dacotah	—	5⅛	New York	2¼	3
Derby	⅛	1⅛	N. Y. & Nova Scotia	⅛	1⅛
Douglass	—	—	Quartz Hill	9¼	10
Evergreen	18⅛	20	Quicksilver M'g Co	81	82
Flint Steel River	12	13⅛	Rocky Mountain	—	10⅛
Frue	2⅜	5	Smith & Parmelee	7	12
Grand Portage	—	—	***Coal Stocks.***		
Hancock	12¾	14	American	98	100
Hamilton	—	6	Ashburton	—	25
Hilton	5	6	Central	62	65
Hudson	1	2	Cumberland	61	62
Huron	32	33	Del & Hud. Canal	206	208
Indiana	8⅜	9⅛	*Hampshire & Balt.	104	110
Isle Royale	20	20⅜	Pennsylvania	213	215
Keweenaw	—	6	***Lead Stocks.***		
Knowlton	7	10	Bucks County	⅝	⅞
Lafayette	1	2	Clute	1⅛	1⅞
Manhattan	—	—	Erie	—	20
Mendota	—	—	Macomb	3¼	5
Merrimac	4¾	5⅛	Plancentia Bay	1¾	1¾
Minnesota	33	37	Sussex	⅝	⅞
New York. A P.	2	3⅛	Wallkill	3½	6
N. J. Consolidated	4	4⅛	***Iron Stocks.***		
Norwich	—	6	Copake	8	10
Ozima	5	6¾	French Creek	⅜	1
Ontonagon	3	4	Teal Lake	4½	6
Penn	—	11½	***Miscellaneous.***		
Providence	1¾		Rutland Marble	17	20
Quincy	96⅜		* *Ex. div.*		
Reliance	1¼				
Rockland	12½				
Superior	8⅜				
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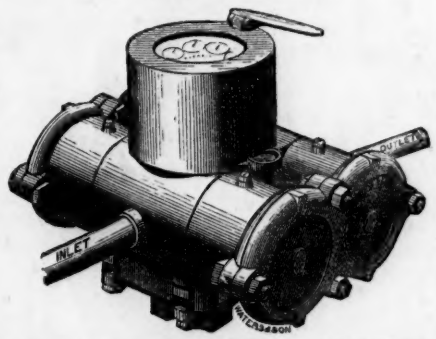

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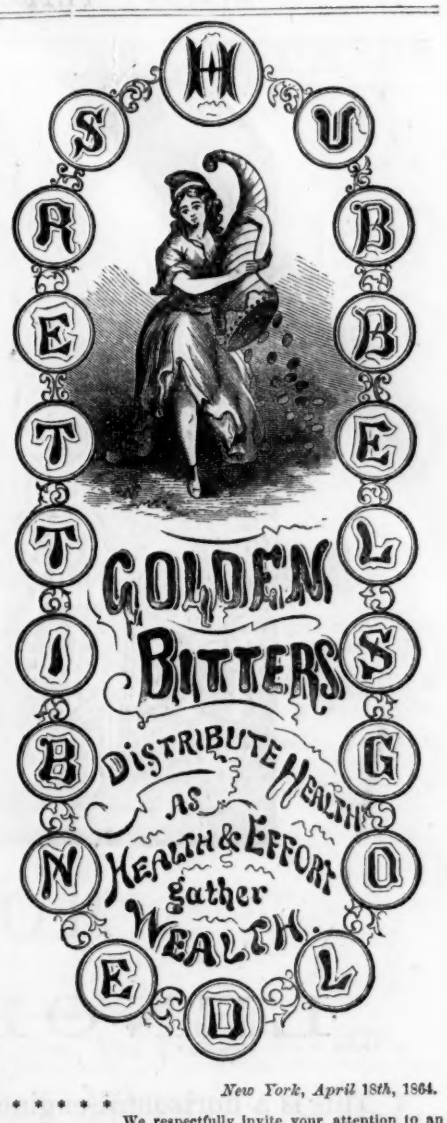
OIL TUBING, CAST IRON DRIVING PIPE, Boring Tools, Oil Pumps, Sand Pumps, Stuffing Boxes, Tongs, Clamps, Swivels, Joints, &c. 131

U. S. MAIL LINE FOR CALIFORNIA, via Panama, under convoy of a United States war steamer throughout the Atlantic voyage.

Leave New York on the 1st and 16th of every month, at 12 o'clock, noon.

For freight or passage apply to

D. B. Allen, No. 5 Bowling Green.



New York, April 18th, 1864.

* * * * * *

We respectfully invite your attention to an consideration of the justly celebrated and reliable remedy for Dyspepsia, Heartburn, Debility and Prostration. The Proprietors are proud to acknowledge the unparalleled success which has attended the sale of their valuable preparation, known in nearly every portion of the civilized world as the

"GOLDEN BITTERS."

We risk nothing when we term them a *valuable preparation*, for they are one of the few articles of the present day which are not a humbug; and we are willing and able to satisfy any person or persons who will call upon us, that the celebrated "Golden Bitters" are a genuine *bona-fide hygienic* article. It is the wish of the proprietors that the virtue of the article be tested before condemning. A decision of their merits by any one who has tried them, is worth a million of purchased bogus testimonials.

For Creating a Healthy Appetite

they are invaluable, and are unequalled as a Tonic. They are mild in their action, and operate by giving *vigor* and *strength* to the system,—not by any change they produce in the solids, but through the medium of the living principle.

They are Purely Vegetable,

being composed of Gentian Root, Calamus, Sassafras, and many other remedial agents of the Vegetable world, all preserved in Jamaica Rum and Sherry Wine.

As a Beverage

They are the most *wholesome, invigorating* and *palatable* stimulant ever offered to the public. And the fact of their being prepared chemically and scientifically, precludes the possibility of a bitter, unpleasant taste, common to Bitters generally offered for sale. We especially recommend them to Ladies, and particularly to those suffering from

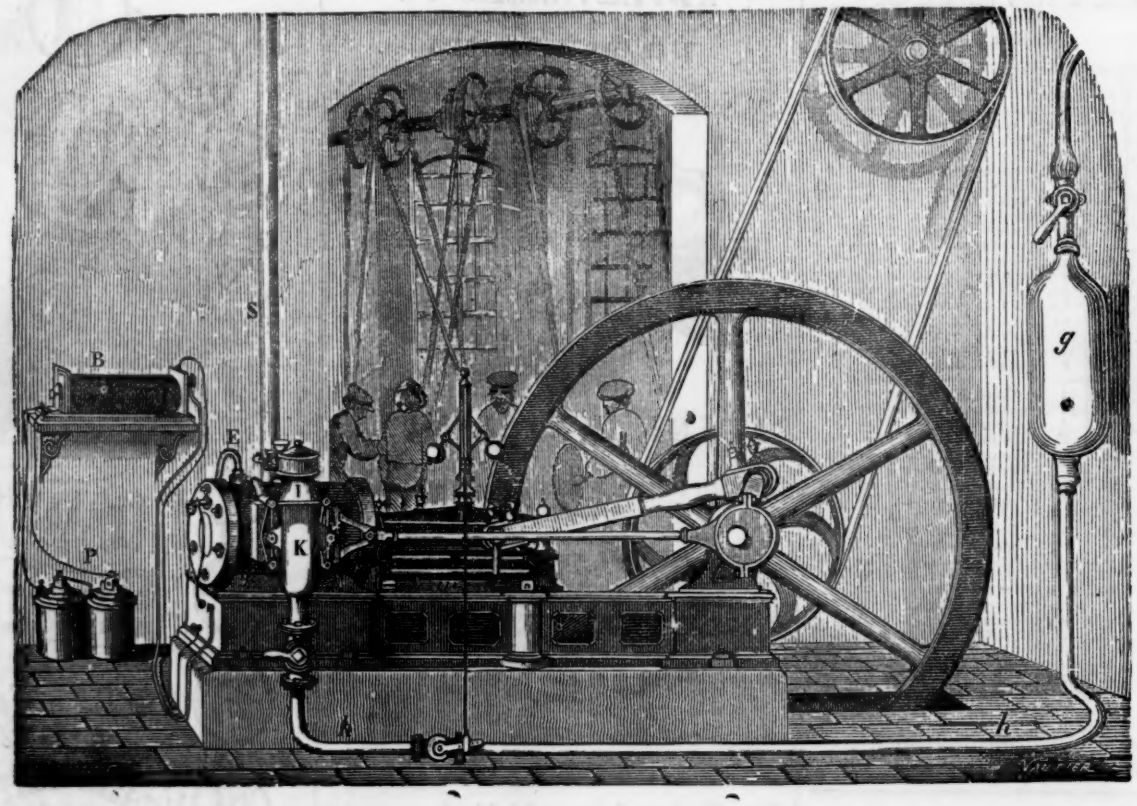
DEBILITY, WEAKNESS, AND PROSTRATION.

Half a wine glass of these "Bitters" three or four times a day, will produce a remarkable healthy change in persons greatly debilitated.

The "Golden Bitters" have been tried and not found wanting. They are put up in our own *Patent* quart bottles, and for sale by Druggists Grocers, &c., throughout the world. Each bottle bears a fac-simile of the signature of Hubbel & Co.

GEO. C. HUBBEL & Co, Sole Proprietors,
CENTRAL DEPOT, American Exp. Building, New York.

The Golden Bitters.—We are not an advocate of stimulants of an alcoholic character; indeed we deprecate this "daily tonic" idea—this "morning toddy" which we see offered in all sorts of shapes as a recuperator, invigorator, revitalizer, &c. As a rule all artificial stimulants are dangerous remedies, and must be taken into the system as you would mercury or arsenic, in very small doses. But we have had an opportunity to try the now well-advertised article known as Hubbel's Golden Bitters, and are frank to say that where the system needs building up, where a stimulant is required to aid nature in restoring a lost appetite and infusing a vigorous action to the debilitated functions, we can recommend these Bitters. Hubbel's Golden Bitters are evidently intended to improve the debilitated human system, rather than to tickle the palate, and are, therefore a harmless and safe remedy to keep in the house.—*New York Weekly Day Book.*



MOTEUR—LENOIR.

LENOIR GAS ENGINE.

This is a horizontal engine, in which a piston, by a connecting rod drives a horizontal shaft.

The gas enters by the pipe "h" from the regulating reservoir "g," (made of vulcanized india rubber,) which regulates the feeding and the branches connected with the gas-pipe.

The tube, K, receives the gas conveyed by the pipe "h," and conducts it to the valve, which opens and closes alternately, by means of a rod moved by an eccentric wheel fastened to the end of the shaft.

Two of Bunsen's piles, P, sufficient to produce the electricity are placed at a little distance from, and in communication with a Ruhmkorff electric apparatus, B. The electric current of this apparatus is conducted by means of insulated wires to the electricity distributor "m," placed on the front of the frame, while the current of electricity and its arrival at the inflammator, inserted at each end of the cylinder, is directed by the movement of the piston-rod, which, by an ingenious combination, impels a small movable slide before the distributor.

The burnt gas, after having performed its functions in the machine, escapes, by means of a valve, through a pipe, S, and the water designed to cool the interior of the cylinder enters through a double passage, by means of a pipe situated near the escape-valve, and goes out by the pipe, E.

A two horse and a half horse Engine are now in practical operation at the Dry Dock Iron Works, No. 435 East Tenth street, near East River, New York, where they are being manufactured, and those interested are invited to call and examine them.

THE LENOIR GAS ENGINE

Requires no Fire and makes no Smoke,

No Noise, no Dirt, and is thoroughly safe.

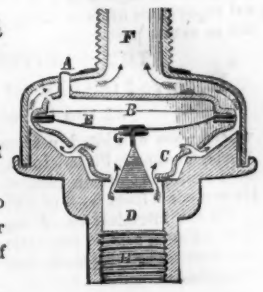
It is propelled by the expansion of Air, dilated by the combustion of Gas within the cylinder, ignited by the

ELECTRIC SPARK

NOTICE TO GAS COMPANIES AND GAS CONSUMERS

THOMPSON'S PATENT GAS CONTROLLER,

The only Self-Acting Gas Controller, Regulator, and Burner Combined which has ever been invented, or known to science.



THE PRINCIPLE UPON WHICH THE THOMPSON'S AUTOMATIC GAS CONTROLLER works is one well known to mechanics, and is simple in its operation.

Within the circumference of a small cylinder below the burner is placed a conical valve attached to a movable diaphragm. The diaphragm rises or falls as the pressure of gas from the pipe is lesser or greater, and the valve acts upon the valve-seat with such regularity of movement that in a difference of from five-tenths of an inch pressure to five inches the variation in flame is hardly perceptible.

The simplicity of its machinery and the nature of the material used in its construction insure its regular action and durability.

In consequence of the uniform quantity of gas which passes the Controller to the burner, there is no waste, and a steady, soft flame is produced, which is important to all who read, write, or work by gas light. The unsteady flickering blaze which invariably exists when the pressure of gas is beyond the requisition for consumption, has injured the sight of thousands who have been subjected to it.

For street lamps these Controllers are especially valuable, because the pressure varies materially during the night, and in consequence there is a waste of gas, and the light variable.

Improvements have lately been made in the mechanism of the Controller which makes them almost a perfect meter to each burner, and they are now offered to the public with more confidence than ever before.

Reference is permitted to the following named gentlemen—

Col. CHAS. ROOME, President Manhattan Gas Company, N. Y.
C. H. SANDS, Esq., President Metropolitan Gas Company, "
J. H. ADAM, Esq., President New York Gas Company, "
PETER COOPER, Esq., Cooper Institute, "
JOHN A. DUFF, Esq., Olympic Theatre, "

GEO. H. KITCHEN, Inspector of Gas Meters, N. Y.
A. L. BOGART, Esq., Gas Engineer.
Col. J. A. SABATTON, Engineer Manhattan Gas Company.
Col. A. J. WHITE, Engineer Metropolitan Gas Company.
J. K. SIMPSON, Esq., Engineer Cooper Institute.

Persons interested are invited to call at the Office, 111 Pearl street, where they can see the operation by pressure guage and test meters

M. L CALLENDAR, Agent
Office, 111 PEARL STREET.

THE AMERICAN METER CO.

Organized under the General Manufacturing Laws of the State of New York.

SAMUEL DOWN, PRESIDENT. HENRY CARTWRIGHT, VICE PRESIDENT. RICHARD MERRIFIELD, SECRETARY AND TREASURER.

TRUSTEES.

SAMUEL DOWN, WILLIAM HOPPER, R. H. GRATZ, HENRY CARTWRIGHT, RICHARD MERRIFIELD.
THOMAS C. HOPPER, *Superintendent at Philadelphia.*

This Company is now prepared to furnish WET AND DRY GAS METERS, STATION METERS, GOVERNORS, PRESSURE INDICATORS & REGISTERS, SERVICE and METER COCKS, and all other articles in their line appertaining to the use of Gas-Works.

The combination of Mechanical and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durability, accuracy and excellence of workmanship. Orders addressed

AMERICAN METER COMPANY,

512 WEST TWENTY-SECOND STREET, NEW YORK,
ARCH AND TWENTY-SECOND STREETS, PHILADELPHIA,
No 23 WEST STREET, BOSTON, will meet with prompt attention.

HARRIS & BROTHER, PRACTICAL GAS METE MANUFACTURERS,

Continue, as heretofore, at their old Establishment, **No. 1117 CHERRY ST., PHILADELPHIA,** to Manufacture

WET AND DRY GAS METERS, and all kinds of GAS APPARATUS, and furnish all articles appertaining to the use of Gas Works. ☞OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicited, and promptly attended to, by

HARRIS & BRO., No. 1117 Cherry st., Phila.

Messrs. Harris & Brother, Philadelphia Gas Works, February 14, 1857.

Dear Sirs—I take great pleasure in stating that we have found your meters to register with entire correctness, and to be generally of very good quality; the number furnished by you to these works is over 5,000.

JOHN C. CRESSON, Engineer.

Office of the Gas Light Company of Augusta, Ga., March 6th, 1858.

This is to certify that having used meters manufactured by Messrs. Harris & Bro., for the last nine years, we do not hesitate to state they have given entire satisfaction in point of workmanship and accuracy of registration; they are surpassed by none, and equalled by few manufactories in the Union; we have used meters made by other establishments, but our preference is in favor of those made by Harris & Bro., of Philadelphia, Pa.

G. S. HOOKEY, Superintendent of the Gas Light Company of Augusta, Ga,

Messrs. Harris & Brother, Philadelphia. Philadelphia, March 4, 1858.

Gentlemen—We take great pleasure in bearing our testimony to the very superior character of the meters we have received from your establishment. We have always found the workmanship all we could desire, while the accuracy and reliability of their measurement have always been satisfactory. We have used meters made by other parties, and none have given as entire satisfaction as those received from you. We are, gentlemen, very truly, yours, BIRKINBINE & MEARS.

Messrs. Harris & Brother. March 14, 1857.

Gentlemen—For the last ten years we have used in the Philadelphia Gas Works, meters made in your factory and take pleasure in expressing my opinion as to their correctness. On several occasions I have taken your meters apart, and found the materials used in the manufacture of the same to be as fine quality as is used in those imported from Europe, or made by any of the manufacturers in the United States.

Respectfully Yours, GEORGE WIRGAND,
Inspector of GasFittings, Philadelphia Gas rks

GROVESTEEN & CO.,

PIANO-FORTE MANUFACTURERS.

499 BROADWAY, NEW YORK.

The attention of the public and the trade is invited to our New Scale Seven Octave Rosewood Piano-Fortes, which for volume and purity of tone are unrivalled by any hitherto offered in this marked. They contain all the modern improvements, French, grand action, harp pedal, iron frame, over-strung bass etc., and each instrument being made under the personal supervision of Mr. J. H. Grovesteen, who has had a practical experience of over thirty years in their manufacture, is fully warranted in every particular.

THE "GROVESTEEN PIANO-FORTE"

Received the highest award of merit over all others at the Celebrated World's Fair!

where were exhibited instruments from the best makers of London, Paris, Germany, Philadelphia, Baltimore, Boston, and New York; and also at the American Institute for five successive years, the gold and silver medals from both of which can be seen at our warerooms.

By the introduction of improvements we make a still more perfect Piano-Forte, and by manufacturing largely, with a strictly cash system, are enabled to offer these instruments at a price which will preclude all competition.

PRICES.

No. 1, Seven Octave, round corners, Rosewood Plain Case, $275.
No. 2, Seven Octave, round corners, Rosewood Heavy Moulding, $300
No 3, Seven Octave, round corners, Rosewood Louis XIV, style $325, a fac-simile of the accompaning cut.

TERMS—NET CASH, IN CURRENT FUNDS. Descriptive Circular sent free.

LILLIE'S

CELEBRATED

Chilled and Wrought Iron Safes,

WROUGHT IRON FIRE-PROOFS,

LOCKS AND VAULT DOORS.

These Fire-Proofs are manufactured to supply a demand for Security Against Fire, less expensive than my celebrated and superior Chilled and Wrought Iron Burglar and Fire-Proof Safes.

They furnish similar and equal security to the Safes generally manufactured in the different cities, but are SUPERIOR to them in their Fire-Proof qualities and durability, the iron being effectually protected from rust in any climate, and the Fire-proof not subject to lose its utility by age. This is an important advantage gained to the purchaser, as Safes often rust out and become worthless in two or three years.

To substantiate my position, those purchasing these Fire-Proofs are at liberty, by giving me due notice of time and place of trial, to test them by fire with any other Safe of the same size; and should they not prove superior, I will refund the money, or a new Fire-Proof, as the purchaser may decide.

LIST OF SIZES & PRICES OF WROUGHT IRON FIRE-PROOFS

	Outside.			Inside.			
No.	Height.	Width.	Depth.	Height.	Width.	Depth.	Price.
6	40	31	27	31	21	15	$150
5	34	21	26	24	21	14	125
4	31	27	25	22	18	13	110
3	30	24	24	21	15	12	100
2	28	22	23	20	14	12	75
1	24	19	20	17	11	10	50

Sample of Fire-Proof Safe at Office of the Am. Ad. Agency, 389 Broadway, N. Y.

PRICE LIST.

LILLIE'S CELEBRATED CHILLED & WROUGHT IRON SAFES.

BANK, FIRE, AND BURGLAR SAFES.
Folding Doors, D Lock.

No.	OUTSIDE. Height	Width.	Depth.	INSIDE. Height.	Width.	Length.	Price.
	In.	In.	In.	In.	In.	In.	
1	66	50	29	54⅛	39	18	$950
1½	59	50	26	48	39	15	800
2	53	44	27	42⅛	33	15	600

MERCANTILE F AND B SAFES.
Folding Doors and Monitor Locks.

3	50	42	27	40	32	18	$500
4	46	42	27	36	32	16	450
4½	38	46	27	28	36	16	450
5	42	38	27	31⅛	27½	15	350

Single Doors and M. Lock.

6	38	35	26	27	23½	15	$250
7	34	31	26	24	24	14	200
8	31	28	24	21	18	13	175
9	30	24	24	21	15	12	140
10	26	22	22	19⅛	13½	12	120
1	24	20	18	17	17	10	100

HOUSE SAFES

SIDE BOARD	$600
DINING ROOM	350
PANTRY (No. 1)	275
PANTRY (No 2)	150
DUODECAGON BANK LOCK	100
MONITOR SAFE do.	50
SAFE do.	10

NATIONAL BANK SAFES,
With 2 Inside Burglars and 1 D and 2 M Locks.

No.	OUTSIDE. Height.		INSIDE. Hei	Width.	Depth.	Price.
	In.		In.	In	In.	
1	68		55	39	18	$1,200
2	61		48	39	18	1,050
3	57		42⅛	33	18	900

BANK VAULT BURGLAR SAFES,
With Folding Doors and D Lock.

0	68	58	27	64	48	20	$1,000
0½	61	58	27	55	46	20	800
1	57	47	27	49	40	20	600

BANK VAULT BURGLAR SAFES,
Single Doors and D Lock,

2	53	32	26	49	28	
	42	36	22	38	32	19
4	36	31	20	32	27	
5	30	24	18	26	20	14

BANK VAULT DOORS AND FRAMES,
D and S Lock.

No.	Height clear.	Width clear.	Depth adjustable.	Price.	Weight.
	In.	In.	In.		
1	72	27	20	$400	3,000
2	72	27	20	275	1,500

Orders received and filled at net cash prices, by the AMERICAN ADVERTISING AGENCY, 389 Broadway, New York. All Safes shipped from Troy free of cartage.

Business Depart., E. ALVORD. *Corresponding Depart.*, FOWLER AND WE

WEST'S IMPROVED PUMP.

Anti-Freezing, Double-Acting, Forcing, and Lifting

These Pumps have now been in general use a number of years, and give better satisfaction than any other, and are recommended as

THE BEST!

by CAPTAIN ERICSSON and other eminent engineers. We can refer to thousands using them, a guarantee but all will recommend them. They are more simple in construction, and work easie and cost less than all others.

"Our readers will find the double acting, improved pump of J. D. West & Co., one of the best in the market. It is very simple, works to a charm, so that any child may use it; throws a steady, continuous stream, and does not freeze in the coldest exposures, and is unusually cheap. We say this knowingly, and give the testimony of our own accord, without the knowledge or request of the proprietor."—*New York Evening Post, July 1st 1863.*

"J. D. WEST & CO: We are pleased to state that the Pumps we had of you about a year ago, have been in constant use, twelve hours each day, and raise for the use of our woolen factory, about 180 gallons per minute. They work with but little power, compared with pumps we have used before, and do not get out of repair, and are satisfactory in all respects.

"DUNLAP MANUFACTURING CO."

Solon Robinson to the Farmers' Club.

Jan. 23.

"No farmer who owns a well or cistern can possibly afford to be without an iron pump. It should be a double suction and force pump—a perfect little fire engine—such a one known as 'West's Improved Pump.' I speak of this Pump because I happen to know it ...to be very simple, durable, powerful and cheap, and it don't freeze up, nor get out of order once a year....I know this, and think I may be doing the farmers good by speaking of it... A boy ten years old can work it, and throw a continuous inch-and-a-quarter stream...It can be made to work in deep wells as well as in shallow ones."

"GREAT NECK, L. I., 1860.

"I have used this Pump for one summer and winter, exposed to the northwest wind coming over Long Island Sound, being the coldest possible exposure, and at no time did it freeze, nor were we unable at any time to pump water with great ease.

H. B. MC ILVAIN."

"The undersigned having to use "West's Improved Pumps," cheerfully recommend them as simple, durable, and powerful in raising and throwing water, and for their ease of action, security against frost, and low price, we believe them superior to all others.

"WARREN LELAND, Met. Hotel, N. Y.
"J. W. POMEROY, Yonkers, N. Y.
"JOHN MESEREAU, N. Y.
"DOMINICK LAWRENCE, Westchester."

From the New York Observer.

"We have had in use for months past one of West's Pumps, which has given us more satisfaction as a force and lifting pump than any we have ever used. It is one of great power, and well adapted for ship's decks, mines, factories, greenhouses, graperies, etc. *The Mining Chronicle and Railway Journal* says: 'It is recommended for its extreme simplicity of construction, great strength, and consequent durability and cheapness of repair. There is no stuffing-box—the pressure being held by a cup packing, like that upon the working-piston, working in a cylinder, fitted for the purpose within the upper air chamber—which we think a great improvement, as stuffing is so liable to be deranged and leak under strong pressure, to say nothing of the loss by friction incident thereto. It has also two air-chambers; thus the action of the valve is cushioned upon both sides by air—preventing water-hammer and vacuum-thump. The valves are very accessible and simply and cheaply repaired. They work much easier than any pump we have ever seen; the 4-inch cylinder being worked by children in wells 100 feet deep, and as they are extremely cheap, as well as simple and strong, we freely recommend them.'"

"CAMBRIDGE MINE, N. C., June 15, 1863.

"J. D. WEST & CO.—Gents: The Pump which I ordered for our mine is received, and put to work in our underlay shaft, which we are sinking. We find that one man will, with ease, lift 70 gallons per minute. We lifted in three and a half hours all the water in the shaft, which measures seven by twelve feet and thirty feet deep, and it was full when we commenced. It answers our expectations in every respect, and our workmen are highly pleased with it. It will do great service with but trifling expense for repairs.

"Yours, respectfully, BURR HIGGINS."

"This may certify, that I have been using, at my manufactory, for the last four years, 'West's Improved Pumps.' I now have in use three of said Pumps, one of which is kept constantly at work, 24 hours of each day (save Sundays), and has been running for the past two years. I pronounce them, unhesitatingly, the best Pumps that have been brought to my notice, having used many others previously. They are simple in their construction, and not easily disarranged.

"N. Y., Oct. 10, 1859. JAS. A. WEBB."

We have plenty more such certificates, but think these are enough. For Pumps, Hose, Pipe, etc., address or call upon

J. D. WEST & CO., 179 Broadway, New York.

Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway

AMALGAM BELLS,
AMALGAM BELLS,
AMALGAM BELLS,
AMALGAM BELLS

At prices within the reach of every Church, School, Cemetery, Factory, or Farm in the land. Their use throughout the United States and Canadas for the past six years has proven them to combine most valuable qualities. Among which are TONE, STRENGTH, SWEETNESS, and DURABILITY OF VIBRATION, unequalled by any other manufacture. Sizes from 15 to 5,000 lbs., costing TWO THIRDS LESS than other metal, or 25 cents per pound, at which price I warrant them twelve months. Old bell metal taken in exchange, or bought for cash. Send for a circular to the manufacturer,

JOHN B. ROBINSON,
No. 36 DEY STREET, NEW YORK.

List of Academy, Steamboat, Fire-alarm, and Church Bells with particulars as to Weight, Sizes, Price of Bells, Hangings, etc.

Weight of Bells.	Diameter.	Price of Bells without Hangings.	Price of Patent Hangings.	Price of Bell and Hangings complete.
225 lbs.	26 inches.	$56 00	$15 00	$71 00
275 "	42	69 00	18 00	87 00
375	36	94 00	22 00	116 00
450	84	112 00	25 00	137 00
600	02	150 00	30 00	180 00
750	39	188 00	35 00	225 00
1,000	64	250 00	42 00	292 00
1,200	48	300 00	45 00	345 00
1,400	50	350 00	50 00	400 00
1,600	52	400 00	54 00	454 00
1,800	55	450 00	60 00	510 00
2,000	58	500 00	62 00	562 00
2,500	60	625 00	72 00	697 00
3,000	63	750 00	85 00	835 00
3,500	66	875 00	87 00	962 00
4,000	69	1,000 00	100 00	1,100 00
4,500	72	1,125 00	1 3 00	1 238 00
5,000	75	1,250 00	125 00	1 375 00

List of Prices, Weights, and Sizes of Farm Hotel, Steamboat, Schoolhouse, Shop, and Factory Bell.

These Bells are fitted with Yoke, Standard's Crank and Bolt, complete for use.

Weight of Bell and Hangings.	Diameter.	Cost of Bell and Hangings complete.
15 lbs.	7 inches.	$3 75
20	8¼	5 00
35	10	8 75
50	12	12 50
75	16	18 75
100	18	25 00
150	20	37 50
200	22	50 00
250	24	62 50

Larger Sizes made to Order at 25 cents per pound.

Guarantee.—All Bells sold at the above prices WARRANTED against breakage by fair ringing, for TWELVE MONTHS from time of purchasing. Should one fail, a new bell will be given by returning the broken one.

Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway, New York.

In case a Bell breaks after the expiration of the Warrantee, I allow HALF PRICE for the old metal. JOHN B. ROBINSON, 36 Dey Street, N. Y.

PRINCE'S METALLIC PAINT,

AN INDESTRUCTIBLE COATING FOR

IRON, TIN, and WOOD.

It consists of seventy-two parts Oxide of Iron, and twenty-eight parts Cement Lime Stone in the one hundred pounds.

It has much more body than red or white lead. It is warranted perfectly water and fire-proof and to withstand a greater heat on metals without scaling, than any other paint in use.

It is a perfect cover for all kinds of iron, tin, or wood-work, out-houses, and canvas coverings. It prevents and arrests the corrosion of metals, and is not affected by the action of salt, gases, acids or ammonia.

It hardens under water, as has been fully demonstrated by its application to gas-holders, by many of the largest gas companies in the United States; which companies having thoroughly tested its properties as herein claimed, pronounce in its favor over any other paints in the market, even though sold at double its price.

As a coating for patterns of iron or wood, when mixed with shellac, it is much superior to beeswax, oil, or shellac alone, as has been proven at the large founderies in the country.

For patching boilers and making joints, it is considered superior to red lead, or any other preparation.

For cleaning metals it takes the place of crocus, rouge, and emery, being better and cheaper.

This Paint requires no more oil than dry lead or zinc, and much less than the ordinary mineral paints. It is free from any waste, and possesses a spreading and covering power unequaled.

Terms, by the Barrel or Half Barrel, Five Cents per Pound.

A liberal discount made to parties purchasing by the ton.

A Barrel or Ton will be forwarded to any gas companies desirous of testing its qualities, for which there will be no charge if it does not give entire satisfaction as being the cheapest and most durable of all other Paints in the market.

Also, Prince's Imperial Black Paint, and Prince's Protoxide of Iron.

DANIEL SLOAN, General Agent,
115 LIBERTY STREET, NEW YORK.

Local Agent—CALVIN GAY, 29 Doane st., Boston.

GEO. H. KITCHEN & CO.,

NEW PATENT

GAS APPARATUS

For Country Residences, Public Buildings, &c.,

FROM $300 UPWARDS.

EVERY DESCRIPTION OF GAS FIXTURES.

Gas Fitting in all its branches

561 Broadway,
NEW YORK.

SCHMIDLIN & DRISCOLL,

MANUFACTURERS OF

HALL, STREET & CHURCH LANTERNS,

Show Window and Street Lamp Reflectors,

135 Mercer Street,
NEW YORK.

S. FULTON & CO.,

(Successors to Colwell & Co.)

Manufacturers of

PIG IRON & CAST IRON GAS & WATER PIPES.

Also, Heavy & Light Castings of every description, No. 207 North Water street and 206 North Wharves, Philadelphia.

SAMUEL FULTON, THEO TREWENDT

POOLE & HUNT,
BALTIMORE, MD.,
are prepared to execute orders for
GAS-HOLDERS,
IRON-ROOF FRAMING,
And all other descriptions of
Iron Work for Gas-Works, Water-Pipes, and Heavy Castings, and Machinery generally.

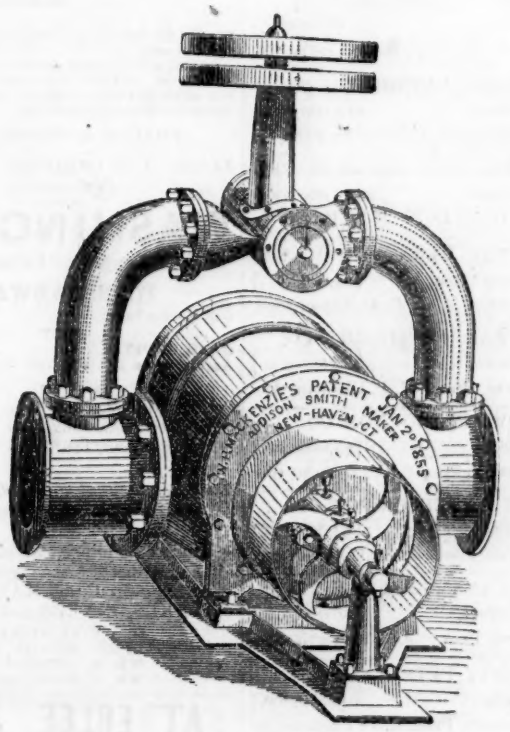
SMITH & SAYRE,

Sole Proprietors and Manufacturers of

THE MACKENZIE PATENT GAS EXHAUSTER

AND

PATENT COMPENSATOR.



They are made to pass from 4,000 to 150,000 cubic feet of gas per hour; will increase the tion and illuminating power of the gas, and add very much to the durability of the retorts, e clay or iron. The Compensator obviates entirely the necessity of water-joints, is compact, dur cleanly, not liable to get out of order, self-acting, quiet, and certain in its operation.

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The Blower is a Force Blast machine, durably built, and can be driven with one-third the power required to drive the ordinary Fan. The Cupolas are manufactured in sizes to melt from 1 ton to 20 tons per hour, will save one quarter of the time required by the old style Cupola, and 33 per cent. fuel. Address SMITH & SAYRE, 484 Broadway, New York.

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Capital issued, 40 000 shares, at $10 per share.
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SAFEST AND CHEAPEST SYSTEM OF INSURANCE.

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172 BROADWAY,
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CASH CAPITAL, - - - $400.000.
Assets, June 1, 1864, - - - 600.000.

Scrip Dividend, 1863, - - 60 per Cent.
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The Policies entitled to participate receive 75 per cent. of net Profits.

Insures Buildings, Merchandise, Furniture, Rents, Leases, against loss or damage by FIRE, and MARINE RISKS on LAKES, RIVERS and CANALS.

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The insured receive seventy-five per cent. of the net profits annually, without incurring any liability. When preferred, a discount will be made in lieu of participation in profits.

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Photometers, Pressure Registers, Indicators, and Gauges, Governor's Meter Provers, Centre Seals, Fluid Gauges, &c.
GAS APPARATUS
Of the most reliable and approved construction manufactured and on hand at the
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PUTNAM'S CLOTHES WRINGER.
IT IS THE ONLY RELIABLE
Self-Adjusting Wringer.

No Wood-work to Swell or Split. No Thumb-screws to get out of order. Warranted with or without Cog wheels.

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the best Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $3 to $10 per day.

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*
That a *simple* machine is better than a complicated one.
That a Wringer should be *self-adjusting, durable, and efficient.*
That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.
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That wood-bearings for the shaft to run in *will wear out.*
That the Putnam Wringer, with or without cog-wheels, will *not tear the clothes.*
That cog-wheel regulators are not essential.
That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.
That all who have tried it pronounce it the *best* Wringer ever made.
That it will wring a thread or a bed-quilt *without alteration*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, if such there be; and we say to all, *test* Putnam Wringer. Test it *thoroughly* with *any* and *all* others, and if not entirely satisfactory, return it

PUTNAM MANUFACTURING CO.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,
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Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars.*
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NEW YORK, *January*, 1864.—We have tested Putnam's Clothes Wringer by practical working, and know that it will do. It is cheap; it is simple; it requires no room, whether at work or at rest; a child can operate it; it does its duty thoroughly; it saves time, and it saves wear and tear. We earnestly advise all who have *much* washing to do, with all intelligent persons who have *any*, to buy this Wringer. It will pay for itself in a year at most. HORACE GREELEY.

PRICES—$8, $9, and $10.
Sample Wringers sent, express paid, on receipt of price.
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These Improved Machines SAVE ONE HUNDRED PER CENT. of thread and silk, and make the LOCK-STITCH alike on both sides
They require no instruction to operate perfectly, except the printed directions.
No change in sewing from one kind of goods to another.
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Our NEW MANUFACTORY is now complete, with all its machinery and tools entirely new, and is already rapidly turning out Machines which for BEAUTY and PERFECTION of FINISH are not surpassed by any manufacture in the world.
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Water Pipes, lined and coated with Cement mortar, ready for laying and back filling, and can be tapped like cast-iron pipes, which they excel in durability, discharge, and economy.

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meters once filled with it requiring no further attention whatever for years.
The summer is the proper time to fill them.

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Five years in general use in works using it, to the exclusion of all other fluid, and driving the dry meter out of use, enables us to recommend our patent with perfect confidence.

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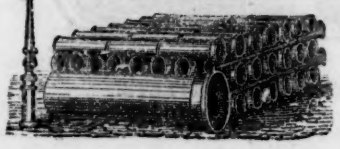

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For sale, Parrish's Patent Gas and Air Mixer, adapted to all works using Petroleum or other oils, by which rich Petroleum Gas is mixed, after it leaves the holder, with a proper proportion of air, giving it the greatest illuminating power, without smoke, through any burners. The apparatus being attached to the outlet pipe, requires no alteration of the works.

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Filling Wet Gas-Meters
Cheaper than Whisky Or any OTHER SUBSTANCE,

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We warrant our Glycerin not to corrode the meter metal, nor to freeze at the lowest ordinary temperature, nor to evaporate.

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Great Improvement IN Sewing Machines. EMPIRE SHUTTLE MACHINE!

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Having neither CAM nor COG WHEEL, and the least possible friction, it runs as smooth as glass, and is

Emphatically a Noiseless Machine!

PRICE OF MACHINES,
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No. 1, Family Machine, with Hemmer, Feller, Gauge, Braider, & Corder, complete - - - $60
No. 2 Small Manufacturing, with Extension Table, $75
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No 3. Large Manufacturing, for Leather, with Rolling Foot and Oil Cup, 100

One-half hour's instructions is sufficient to enable any person to work this Machine to their entire satisfaction.

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Conically Slotted Solid Wood Sieves FOR GAS PURIFIERS.

The Conically Slotted Solid Wood Tray or sieve was patented 31st October, 1862, and all persons are cautioned against purchasing them of any other person except the subscriber. The following companies are now using these trays.

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Gas Retorts, Tiles and Fire-Brick of all shapes and sizes. Fire Mortar, Clay, and Sand. Articles of every description made to order at the shortest notice. B. KREISCHER.

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J. D. WEST & CO.,
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WORTHINGTON'S Steam Pumps, extensively used by Gas-Light Companies. For Sale at greatly Reduced Prices.

Also, a new and highly successful Pump, driven by water pressure, requiring no attention or repairs, and the most economical water motor yet constructed.

Patent GATES, for Water and Steam-stops.
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[illegible] entirely noiseless.

A patented device prevents it being turned backward.

The needle cannot be set wrong.

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COFFEE! COFFEE!

EAST INDIA COFFEE CO.

154 Reade St.,

(Three doors from Greenwich St.,) NEW YORK
Call universal attention to their

KENT'S
East India Coffee,

KENT'S EAST INDIA COFFEE
Has all the flavor of OLD GOVERNMENT JAVA, and is but half the price; and also that

KENT'S EAST INDIA COFFEE
has twice the strength of Java, or any other Coffee whatever and wherever used by our first-class hotels and steamboats—the stewards say there is a saving of 50 per cent.

KENT'S EAST INDIA COFFEE
is the most healthy beverage known, and is very nutritious. The weak and infirm may use it at all times with impunity. The wife of the Rev. W. Eaves, local minister of the M. E. Church, Jersey City, who has not been able to use any coffee for fifteen years, can use

KENT'S EAST INDIA COFFEE
three times a day without injury, it being entirely free from those properties that produce a nervous excitement.

Dr. JAMES BOYLE, of 156 CHAMBERS ST., says: "I have never known any Coffee so healthful, nutritious, and free from all injurious qualities as

KENT'S EAST INDIA COFFEE.
I advise my patients to drink it universally, even those to whom I have hitherto prohibited the use of Coffee.

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KENT'S EAST INDIA COFFEE,
and would not be without it on any account.

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KENT'S EAST INDIA COFFEE,
"I have used it nearly a year in my family, and find it produces no ache of the head or nervous irritation as in the case of all other Coffees. It is exceedingly pleasant, and I cordially recommend it to all clergymen and their families."

KENT'S EAST INDIA COFFEE
is used daily by the families of Bishop Ames, Bishop Baker, Bishop James, and many of the most distinguished clergymen and professional men in the country."

Beware of Counterfeits!
and be sure that packages are labeled

KENT'S EAST INDIA COFFEE,
154 Reade Street, New York,

as there are numerous counterfeits afloat under the name of "Genuine East India Coffee," "Original East India Coffee," etc put forth by imposters to deceive the unwary.

In 1 lb. packages, and in boxes of 36, 60, and 100 lbs., for Grocers and large Consumers. Sold by Grocers *generally.*

Orders from Country Grocers solicited, to whom a very liberal discount will be made.

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The Am. Adv. Agency, 308 Broadway, N. Y., will receive orders for the above named Coffee.

Business Dep., E. ALVORD. | *Corresp Dep.,* FOWL & WELLS.

Glycerin for Gas Meters.

This article is superior to any fluid ever before used for Wet Meters, and we cannot better set forth its advantages than by giving the following letter from the Superintendent of the Covington Gas Co. The superiority of our Glycerin over all others in the market, for this purpose, is admitted by every Company that has used it. We have sold, the past winter, to the Cincinnati Gas-Light and Coke Co; to the Gas Companies of Covington, Ky.; Dayton Springfield, Portsmouth, Urbana, and Piqua, Ohio; Richmond, Ind., and Buffalo, N. Y., to whom we refer.

Glycerin is much cheaper than Whisky is now, or likely to be hereafter, and not evaporating, greatly increases the economy of its use.

OFFICE OF THE COVINGTON GAS-LIGHT CO
COVINGTON, KY., Feb 18, 1864.

MESSRS W. J. M. GORDON & Co.:

Dear Sirs,—It affords us great pleasure in testifying to the superiority of the Glycerin Fluid purchased from you for filling the Wet Meters now in use by the Covington Gas-Light Company.

The difficulty of finding a non-evaporating and anti-freezing mixture for Wet Meters, has, in my opinion, been overcome by the use of your Glycerin Fluid.

I have had it in constant use for the past four months, and during that period the thermometer has ranged as low as 14o below zero, and after careful examination, I have found the fluid in the same condition as when first put in the Meters, and without the slightest discoloration.

Its non evaporating quality does away with the hitherto unavoidable expense of filling the Meters monthly, and renders Wet Meters no longer objectionable.

In fact, I can cheerfully recommend it as being cheaper and better than any other Fluid or Mixture now in use.

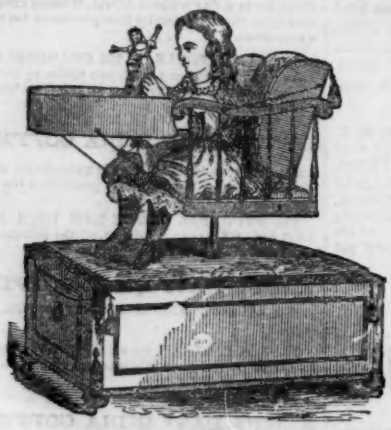
Very respectfully,
S. S. STRATTON, *Sup't Cov. Gas Co.*

We have been engaged in Manufacturing Glycerin the past six years, and from our advantage in material and the large amount we make, are enabled to offer it lower than any manufacturer in this country. We will be pleased to quote prices or to give further information.

W. J. M. GORDON & BRO.,
MANUFACTURING
CHEMISTS & DRUGGISTS,
N. E. Cor. Central Avenue & Eighth St.,
Laboratory, Miami Canal, bet. Third & Fifth Sts.,
CINCINNATI, O.

BROWN'S

PATENT BABY TENDER.



THE BABY-TENDER.

Is the most complete and useful Nusery Invention of the age. From a charming Spring Cradle, it is easily and almost instantly converted into either of the following articles namely:

A Reclining Couch, for children to young to sit alone.
A Spring Chair.
A Baby Walker, attractive and useful.
An Ottoman, for the parlor or dining room.
A Hobby-Horse, for children under five years.
A Baby-Jumper, for security, exercise and amusement. (See cut)
A Baby-Horse, or, when elevated,
A High Chair, for the table.
A Nursery Chair.

The motion of the Baby Tender, which is vertical and noiseless, is derived from a Spiral Spring in the Ottoman; and, unlike that of the common Rocking or Swinging Cradle, is in the highest degree healthy, delightful and soothing. It relieves the mother from the hardest part of baby-tending.

Prices from $25 to $50.

AGENTS WANTED.

Terms cash.

When packed the Baby Tender alone measures seven cubic feet, and weighs about one hundred pounds. The horse adds about one-fourth to the weight and measurement

☞Send for Descriptive Catalogues.

BALY-TENDER MANUFACTURING COMPANY.
939 Broadway, N. Y.

Gas Fixtures and House Furnishing GOODS.

E V. HAUGHWOUT & CO.,

No.'s 488, 490 and 492 Broadway,

Corner of Broome street, New York,

Manufacturers and dealers in

Chandeliers and Gas Fixtures.

Have a large and very choice assortment of GAS FIXTURES, which they offer at reduced prices, in view of the recent fall in gold. Their

Glass and Fire Gilt Chandeliers, are of entirely new designs,

And well worthy of attention by those who wish to purchase

☞ *Fine Fixtures for their Houses.*

They also offer a fine collection of

Real and Composition Bronze Clocks, Mantel Setts and Figures, Parian Statuary, Sterling Silver and Plated Ware, French, China, and English Stone Ware, Dinner, Tea & Toilet Setts, Glassware, Mirrors and Cornices.

☞All Imported goods sold in conformity with the price of gold.

OFFICE OF WM. DAVIDSON,
INSPECTOR OF GAS METERS FOR THE STATE OF NEW YORK,
☞At the above address. 127

WATER AND GAS PIPE.

The Boston Bituminized Pipe Company,

Are now manufacturing and prepared to take orders for their PATENT PIPE, (from 2 to 12 inches in diameter,) as a substitute for Iron, Copper, Lead, &c., for the conveyance of WATER, GAS, SEWERAGE, &c. &c.

From the testimonials received, and the entire satisfaction it has given those having it in use, we feel warranted in claiming for this pipe over that of any other, the following advantages, viz:

It is much CHEAPER—has great strength (it having been tested to 500 lbs. to the square inch,) combined with LIGHTNESS, costing less for transportation; the joints are easily made and perfectly tight; it does not expand or contract from different degrees of temperature, and is free from *CORROSION* or *CONCRETIONS* forming; does not impart any taste or injurious properties to water, and as far as anything can be said to be indestructible, we deem this to be.

As a GAS PIPE, we say it has no superior. The Lowell Gas Light Co., purchased and laid some of this Pipe last year, and have likewise subjected samples to a test of four months duration in their dry lime purifiers, with the most satisfactory results, in fact establishing beyond a doubt, its perfect adaptation to the wants and requirements of Gas Companies, specimens of which, together with the statement of O. E Cushing, Esq., Agent Lowell Gas Light Co., who made these experiments I shall be pleased to show, and give all other needed information, by applying in person, or by letter, to JOHN L. WEBSTER, Treas.,
Boston Bituminized Pipe Co.,
127] No. 2 Pearl st. House, Boston.

A SITUATION WANTED AS SUPERINTENDENT OF OIL WORKS.

A gentleman with every qualification necessary to act as a Superintendent of Oil Works is desirous of procuring a position with some company as such. He has had long experience in the Oil Regions, and constant associations with oil men. The most satisfactory references as to integrity and ability can be given.

129 Address American Gas Light Journal.

TO GAS COMPANIES.

A Gas Engineer of thirteen years experience, desires a re-engagement. He refers, by permission, to

Chas. Roome, Esq., President Manhattan Gas Co.; F. T. Willis, Esq., President Savannah Gas Co.; Ambrose L. White, Esq., Engineer Metropolitan Gas Co.

Address, JAMES R. SMEDBERG,
131 186 Seventh Avenue, New York City.

Cooking & Heating BY GAS.

CHEAPER THAN COAL OR WOOD.

The "EAGLE" Gas Heating STOVES,

Positively guaranteed free from Smoke or Smell.

Will Heat Offices, Parlors, Dining, Sleeping, and Bat Rooms. Also,

The EAGLE Gas Cooking STOVES & RANGES,

Will BOIL, BROIL, ROAST, BAKE, TOAST,

STEW, and HEAT IRONS

The EAGLE GAS STOVES and RANGES have been in use for over Three years, and are found to be the most SIMPLE, COMPLETE and PERFECT Arrangment for HEATING and COOKING, in every respect ever invented, and to do the Work with LESS TROUBLE, in LESS TIME and at LESS EXPENSE than any Coal or Wood stove.

Their WONDERFUL NEATNESS, CONVENIENCE and ECONOMY can be seen at a glance.

WE ALSO MANUFACTURE

COAL OIL STOVES,

For Cooking and Heating.

The American Advertising agency 389 Broadway, N. Y. Bus. Dept., E. Alvord, cor. Dept., Fowler & Wells, receive orders for our stoves.

EAGLE GAS STOVE MANUFACTURING CO.
No. 474 BROADWAY, N. Y.

☞The Company have descriptive Catalogues, which will be sent or delivered, upon application for them.

DRIVING PIPE,

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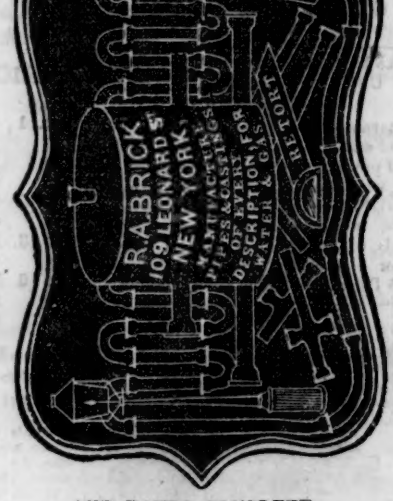

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AND BANDS COMPLETE.